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Société Entomologique du Canada

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## EDITORIAL

The Entomological Society of Canada has for years put aside $1,000 for Youth Encouragement. Some Affiliated Societies have used their portion of this fund to promote entomology in the schools and among amateurs. There are amateur entomological societies in some provinces. While at the 1980 annual joint meeting of the Société entomologique du Québec and ESC in Quebec City, I was able to obtain some literature on "L' Association des Entomolgistes amateurs du Quebec" (see December 1980 Bulletin, vol. 12 (4): 102). At the Entomological Society of Ontario annual meeting in London, amateur entomologists participated in the program (ESC Bulletin, December vol. 12(4):59,109). In the September Bulletin (vol. 13(3):85-86) there are reports of the past and pending activities of amateur entomologists in Manitoba and Ontario. The editor would like to include more information on the activities of amateur entomologists in Canada and how societies affiliated with ESC are encouraging young entomologists.

## TEEN INTERNATIONAL ENTOMOLOGY (TIEG)

This is sponsored by the Cooperative Extension Service, Department of Entomology, Michigan State University and by the Entomological Societies of Canada and America. Membership fees are U.S. $2.00 for students and U.S. $4.00 for adults for which you receive The TIEG magazine and TIEG newsletter. Please support amateur entomology both by joining and by writing short articles or exchanging information. For further details contact TIEG Editor, Department of Entomology, Michigan State University, East Lansing, MI 48824.

## NEW ESC SECRETARY

The Governing Board is pleased to announce that H.G. Wylie will be the new Secretary of the Society, beginning January 1982. He is a Research Scientist working on biological control of insect pests at the Agriculture Canada Research Station in Winnipeg since 1972, and prior to that worked at the Research Institute in Belleville. He was a member of the By-laws, Rules and Regulations Committee, and served as President of the Entomological Society of Manitoba in 1977.

J. E. Laing, Secretary of the Society since 1978, recently resigned from the position.

## LABORATORY CULTURES OF INSECTS AND OTHER ARTHROPODS IN CANADA
## INSECTES ET AUTRES ARTHROPODES ELEVES EN LABORATOIRE AU CANADA

The 1981 revision is now available for distribution. Contributors will receive their copies directly. Others should request them from: J.S. Kelleher, SIRS - Research Program Service, Research Branch, Agriculture Canada, Room 1133, K.W. Neatby Building, Ottawa, Ontario K1A 0C6.

L'édition de 1981 de la liste est maintenant disponible. On peut en obtenir une copie en écrivant à l'addresse ci-dessus.

# THE PRESIDENT'S REPORT

31st Annual Meeting of the Entomological Society of Canada
Banff, October 1981

It is my duty to report that, in 1981 the Entomological Society of Canada survived the postal strike and the president. At the outset, I wish to express my appreciation for your act of faith in entrusting to me, the stewardship of the Society and I thank you for the honour. It has been a demanding, but for the most part satisfying, task. Any progress that has been made this year and in past years is due to the collective efforts of an industrious, conscientious group of volunteers behind the scenes who devote many hours at considerable personal sacrifice to make this Society work. Let us not take them for granted. I, and every other member, is indebted to the executive, governing board, trustees, editors and associate editors, chairmen and members of committees, and representatives. I am pleased to convey to them the thanks and appreciation of the members of the Society.

One of my great concerns has been, and is, the future of entomology and entomologists in Canada. Support of entomology has been declining for several years and there is no indication of an upswing in the foreseeable future. The filling of vacancies does not represent a real expansion in entomological research. Many students of Canadian universities feel that their future prospects for suitable employment in entomology are dim. It is to their creidt that so many continue to pursue their entomological interests despite the uncertain future. The federal government's "status quo" policy on entomological postions is one of the principal reasons for the difficult job market. In 1939, there were 140 entomologists in the federal government, in 1954-350, before 1970-200, and in 1980 fewer than 140. The government is not obliged to hire entomologists for the sake of providing jobs for new PhD's but it is obliged to develop a long-range policy for the biological sciences, and to provide continuing support of R & D in these sciences. There are those who feel that Canada has enough entomologists and that there is no cause for concern about the future. I fervently hope they are right. But let us go back a few years.

In 1970, Dr. A. J. Mooradian, then vice-president Atomic Energy of Canada, Pirawa gave an address entitled "Whither Canadian Science or Wither Canadian Science - a Choice" at a joint meeting of the Entomological Societies of Canada and Manitoba. He told us that a viable scientific community had not yet been produced in Canada. He recognized the impact of entomology in renewable resource industries, health and recreation but concluded that entomologists are not forceful enough in presenting their case for expansion.

In his presidential address 10 years ago, Paul Ritcher, then President of the Entomological Society of America expressed concern about the lack of positions for graduates in entomology, making it difficult for new PhD's to find suitable jobs. He stated that some settled for postdoctoral positions, some were underemployed, and some unemployed. In that year, 1971, Bill Baldwin, President of the Entomological Society of Canada showed that opportunities for employment of entomologists in university, industry and government were on the decline and did not look promising for the next few years despite the abundance of entomological problems. In 1972, President Corbet pointed out that the reorganization of government agencies that employed many entomologists "was not conducive to the prosecution of good long-term programmes". In 1973, President Kevan expressed the view that "so long as young, competent entomologists are unemployed in their own field, we should make every effort to see that the demand for them is there". In 1974, President McLintock cited reports that reflected the demoralizing effect of continuing restrictive budgets, lack of technical support, and absence of long-term studies. President Harris, in 1975, deplored the passing of an era in which science policy could be influenced by individuals. In 1976, President Cooper wrote to the Prime Minister to express the Society's concern about the downgrading of scientific research in Canada. He stressed the need for greater emphasis on entomological training and research in food production and forest management, and warned that continuing curtailment of research projects would have disastrous effects. A year later, President MacGillivray echoed these concerns. She urged members: to inform politicians at all levels of governemnt about the importance of entomologists in food and fiber production, to voice their concern at the declining number of entomologists in Canada, and to emphasize the need for research people and funds. In 1978, President Wellington referred to the concerns of his predecessors about the long-term consequences of policies that adversely affected Canadian applied biology during the 1960's. While noting

# RAPPORT DU PRÉSIDENT

pour la 31e Réunion Annuelle de la Société entomologuque du Canada
BANFF, Octobre 1981

Il est de mon devoir de vous signaler qu'en 1981 la SEC a encore une fois survécu à son président et à une autre grève des postes. En premier lieu j'aimerais vous exprimer ma gratitude pour la confiance que vous m'avez témoignée en m'accordant la gérance de la Société et je tiens à vous remercier pour cet honneur. Ce fut une tâche ardue, mais en général très enrichissante. Tout le pregoès réalisé au cours de cette année et des années précédentes, est le résultat de l'effort collectif d'un groupe de volontaire consciencieux et dévoués qui ont travaillé dans l'ombre pour assurer le bon fonctionnement de notre Société. Nous ne devons pas prendre leur effort pour acquis. Nous sommes tous redevables à l'exécutif, au bureau de direction, aux administrateurs, aux éditeurs et éditeurs associés, aux présidents des divers comités ainsi qu'à leurs membres, et finalement aux représentants. Il me fait donc plaisir de les remercier au nom tous les membres de la Société.

Parmi tous mes soucis, l'avenir de l'entomologie et des entomologistes au Canada est sans aucun doute le plus grand. Depuis plusieurs années, le soutien accordé à l'entomologie diminue, et rien ne laisse présager un virement de situation dans les années à venir. Le remplacement aux postes libérés ne constitue pas une expansion dans le domaine de la recherche entomologique. Bon nombre d'étudiants présentement inscrits dans nos universités candiennes, considèrent comme très minces leurs opportunités d'emploi comme entomologistes. La politique du "statu quo" du Governement Fédéral pour les postes en entomologie, en est principalement responsable. En 1937, 140 entomologistes travaillaient pour le Gouvernement Fédéral, 350 en 1954, 200 avant le début des années '70, et en 1980 il en reste moins de 140. Nous ne demandons pas au Governement d'employer des entomologistes à la seule fin d' assurer des postes à nos jenues Ph.D.; par contre ce même Gouvernement se doit de développer une politique globale à long terme pour les sciences biologiques, et de supporter la recherche et le développement dans ce domaine. Certain croient que le Canada possède déjà suffisamment d'entomologiste; et que nous n'avons pas à nous inquiéter pour le futur. J'espère sincèrement qu'ils ont raison, mais tout d'abord j'aimerais que nous fassions un recul de quelques années. Lors de la réunion conjointe de la SEC et de celle du Manitoba en 1970, le Dr. A.J. Mooradian, alors vice-président "d'Energie Atomique du Canada" à Pinawa, présentait une allocution intitulée "Whither Canadian Science or Wither Canadian Science - a Choice", au cours de laquelle il soulignait l'absence d'une communauté scientifique viable au Canada, Toutefois, il reconnaissait l'importance de l'entomologie dans les industries des ressources renouvelables, la santé et la récréation, et concluait en disant que les entomologistes ne montraient pas suffisamment de conviction à argumenter en faveur de leur propre expansion.

Il y a 10 ans, lors de son discours comme président de l'ESA, Paul Ritcher exprimait son inquiétude face au faible nombre de postes disponibles en entomologie. Cette situation affectait principalement les nouveaux Ph.D., plusiers devant accepter des positions de post-doctorat ou encore occuper des emplois ne nécessitant aucunement les qualifications d'un Ph.D. Pour les autres ils se sont retrouvés sans emploi. Au cours de la même année, 1971, le Préisdent de la SEC Bill Baldwin, observait que malgré l'abondance des problèmes entomologiques, le nombre d'opportunités d'emplois en entomologie diminuait aux niveaux universitaire, industriel et gouvernemental, et que la futur n'était pas prometteur. En 1972, le Président Corbet soulignait que le type de réorganisation en cours dans les agences gouvernementales employant des entomologistes ne conduirait pas à l'établissement de programmes à long terme. En 1973, le Président Kevan émettait l'opinion suivante: "Tant et aussi longtemps qu'il y aura des jeunes entomologistes compétents sans emploi, nous devrons faire tout ce qui est en notre pouvoir pour leur en assurer un". En 1974, le Président McLintock citait des rapports reflétant les effets démoralisants des restrictions budgétaires continuelles, du manque du support technique et de l'absence d'études à long terme. En 1975 le Président Harris déplorait pour sa part qui l'époque qu la polituque scientifique pouvait être influencée par certains individus était chose du passé. En 1976. le Président Cooper écrivait au Premier Ministre pour lui exprimer l'inquiétude de la Société concernant le déclin rapide de la recherche scientifique au Canada. De plus il soulignait l'importance que l'on devait accorder à la formation d'entomologiste de même qu'à la recherche en production alimentaire et aménagement forestier, affirmant qu'une réduction continuelle des projets de

that these concerns had little influence on politicians, he nevertheless recognized the continuing need for bluntness, and the important role the Society could play in ensuring the survival and support of biological research. In 1979, President McEwen stated "From one end of this country to the other, the number of entomologists has been reduced in operational departments of government to the point where in both agriculture and forestry we are unable to cope with current problems, or direct any significant resources to the kinds of comprehensive studies so desperately needed to resolve entomolgical problems". Last year, President Turnock on numerous occasions expressed his concern about inadequate funding of R & D in the renewable resources sciences, particularly entomology.

We are told that austerity and fiscal restraint is the order of the day, yet we see vastly increased spending. Apparently, austerity and restaint apply only to research and development in the biological science - those sciences most directly related to the production of our daily bread and provision of our shelter. Canada's future as a continuing major producer of food and fiber is so important that only those best equipped by training and knowledge should be entrusted with making decisions in the orderly long-term development of renewable resources. Short term, short-sighted policies are inefficient and costly.

A recent report entitled "Postdoctoral Appointments and Disappointments" commissioned by the National Science Foundation indicates that PDF's in the biological sciences in the USA are badly paid compared with the PhD's in other careers or in permanent academic posts, and often suffer demeaning conditions of employment. The appointees put up with indignities in the hope of obtaining tenured university positions. Because the chances of securing permanent posts are no longer high, PDF's feel exploited.

The foregoing comments might tempt one to say "Plus ça change, plus ça reste la meme chose". However, the picture is not all black. There have been in past years some wise people in science whose far-sighted policies resulted in today's benefits, for example, improved crops and livestock, and better methods for insect control. If we cut back on R & D today, what do we reap tomorrow? Presidents Wellington and McEwen both emphasized the need to demonstrate the importance of entomology to the management of Canada's renewable resources. Hopefully, this will be accomplished through the Society's study on the costs of destructive insects, which is designed to provide hard data on the benefits of entomological research.

Despite the sometimes agonizingly slow progress we do not give up. We must continue to impress upon policy makers, the importance of a viable, long-term continuous science policy. The entomologist has a right to expect support from the beneficiaries of entomological research. When we are asked to justify our research, is it not pertinent for us to ask why there should be restrictions on research that will directly or indirectly benefit mankind, or why Canada as a major producer and exporter of food and fiber spends less of its national income on research and development than do most other western nations? Surely, the highly qualified people coming out of our universities have a right to satisfy career aspirations by pursuing long-term goals in a climate conducive to both applied and curiosity-motivated research. If the government encourages the development of science through education, it ought to support adequate funding of research so that these highly trained people can be gainfully employed.

Recently, an administrator for the Association of Professional Engineers expressed the view that it is better to direct research grant money to helping the economy than to provide jobs for professionals. In my view, the two go hand in hand. I asked him whether administrators for engineering associations should be hired on two-or-three year term contracts. He replied that it was necessary to have continuity to accomplish long-term objectives. I replied, "Exactly".

My concern for the future of entomology, entomologists, and support for R & D was expressed in a letter to the Prime Minister earlier this year. At the request of the Prime Minister's office, the Honorable Eugene Whelan and the Honorable John Roberts have replied. Copies of the correspondence will appear in the Bulletin. In July, the Honorable John Roberts announced a substantial increase to the 1981-82 NSERC budget. This is welcome news to the recipients. The increased funding will help NSERC attain its objectives. However, the greatest shortage of skilled manpower will be in the physical

recherche aurait éventuellement des effets désastreux. L'année suivante la Présidente MacGillivray exprimait encore les mêmes inquiétudes et incitait les membres (i) à informer tous les politiciens des différents paliers gouvernementaux de l'importance des entomologistes dans la production des fibres et des aliments agricoles, (ii) à exprimer leurs inquiétudes suite à la diminution graduelle du nombre d'entomologistes au Canada et (iii) à souligner la nécessité des chercheurs et des subventions. En 1978 le Président Wellington se référait aux soucis de ses prédecesseurs sur les conséquences néfastes et à long terme qu'ont eu les politiques en vigueur au cours des années '60 sur la biologie appliquée au Canada. Soulignant l'insensibilité des politiciens à ces arguments, il reconnaissait néanmoins l'importance du rôle joué par la Société dans la survie et le maintien de la recherche biologique et la nécessité de continuer de parler franchement. En 1979, le Président McEwen disait que partout au pays on avait réduit le nombre d'entomologistes à l'emploi du gouvernement à tel point qu'il n'était plus possible de faire faceaux problèmes courants à la fois en agriculture et en foresterie, ou de diriger quelques ressources que ce soit aux études globales si essentielles à la compréhension et à la résolution des problèmes entomologiques. L'an dernier, le Président Turnock a exprimé plusieurs fois ses inquiétudes au sujet du financement inadéquat dans les domaines de la recherche et du développement des sciencies qui touchent aux ressources renouvelables, et en particulier l'entomologie.

On nous parle constamment de restrictions budgétaires mais on observe un augmentation sans cesse croissante des dépenses. Serait-ce que les restrictions ne s'appliquent qu'à la recherche et au développement des sciences biologiques, sciences qui sont directement responsables de la production de nos ressources renouvelables? Puisque les politiques aveugles et à court terme sont inefficaces et onéreuses et que l'avenir du Canada comme producteur majeur de ressources renouvelables est d'une telle importance nous devons absolument laisser aux personnes les mieux qualifiées le soin de prendre les décisions concernant le développement des politiques à long terme.

Un rapport initulé "Post-doctoral Appointments and Disappointments" récemment préparé par le "National Sciences Foundation" montre qu'aux USA les Ph.D. au post-doctorat inscrits en sciences biologiques ont des salaires moins élèves et des conditions de travail moins acceptables que ceux des autres domaines, ou encore de ceux occupant des postes académiques. Pour certains, l'espoir d'obtenir un poste permanent dans une université leur permet de tolérer ces conditions, mais comme ce type d'emploi est de plus en plus rare plusieurs d'entre eux se sentent exploités.

Suite à tous ces commentaires on peut penser "The more it changes the more it stays the same" mais la situation n'est pas aussi désespérée. En effet, grâce aux politiques avant-gardistes de certains scientifiques brillants on peut aujord'hui bénéficier de plantes et d'animaux améliorés ainsi que de meilleurs moyens de lutte contre les insectes nuisibles. Cependant, que se passera-t-il demain si on diminue la recherche et le développement aujourd'hui? Les Présidents Wellington et McEwen soulignaient tous deux la nécessité de faire connaître l'importance de l'entomologie dans l' aménagement des ressources renouvelables au Canada. On expère donc que l'étude entreprise par la SEC sur les pertes financières causées par les insectes nuisibles mettra en évidence cette nécessité de la recherche entomologique.

Malgré les progrès lents et pénibles, nous demeurons confiants. Nous devons continuer d'insister auprès de politiciens sur l'importance d'une politique scientifique viable à long terme. Après tout l'entomologiste est en droit de s'attendre à obtenir le support nécessaire de la part de ceux qui bénéficient le plus de la recherche entomologique. Quand vient le moment de justifier notre recherche, n'est-il pas à propos de se demander pourquoi y aurait-il des restrictions sur la recherche qui profitera directement ou indirectement à l'humanité; ou encore comment expliquer que le Canada, un producteur et exportateur majeur d'aliments et de fibres, dépense une fraction moindre de son revenu national pour la recherche et le développement que la plupart des autres pays occidentaux? Il me semble que les finissants hautement qualifiés sortant de nos universités ont le droit de satisfaire leurs aspirations professionnelles, en poursuivant des objectifs à long terme dans un milieu favorable à la recherche fondamentale et appliquée. Si le Gouvernement encourage le développement de la science par le biais de l'éducation, il doit aussi fournir les resssources financières nécessaires afin d'assurer en emploi aux finissants hautement qualifiés.

Selon l'opinion récemment émise par un adminstrateur de l'Association des Ingénieurs Professionnels, il serait préférable d'utiliser l'argent réservé aux fonds de recherche pour stimuler l'économie plutôt que de fournir des emplois aux

sciences and related engineering sector. MOSST believes that high-technology industries are the most likely to generate employment and stimulate the economy. Therefore, it will encourage R & D in this sector. Whether the sharing formula between government, industry, and universities, proposed by MOSST will work remains to be seen. Apart from this, we as a society of biologists must ensure that R & D in the natural sciences does not suffer because of the greater focus on the physical sciences. Our renewable natural resources are still the mainstay of our economy, and I do not think we have solved all the problems in that sector.

NSERC has implemented a program of university research fellowships for young well-qualified PhD's with postdoctoral experience. These PDF's entitle recipients to possible five-year non-tenured research positions in a university. As welcome as this program is, it is nevertheless another form of contracting-out. As members of a scientific society, we must ensure that this and similar programs operate to the maximum benefit of the science, the scientist and the nation, and that they do not become a form of indentured labor.

Accomplishments and Actions

There is a time for creative planning and a time for translating ideas and plans into projects. Obviously, both elements are necessary to any successful endeavour. During this past year, we have put into action some of the plans that were proposed one or more years ago and also formulated plans for the future. Among the accomplishments I should like to report the following:

1. Received government approval and support of the unsolicited proposal by the Society to study the economic impact of destructive insects on selected crops in Canada. This two-year study is designed to provide quantitative data on the costs of insect pests in terms of losses to crops and the costs of control methods.

2. Changed the method for funding the Memoirs to allow the Society to continue sponsorship and publication, the cost to be shared by sponsors, subscribers, and members or student members who wish to purchase them. This formula will be in effect for 1981 and 1982 to determine whether costs and projected revenues balance.

3. Agreed to publish the Arctic Bibliography and Arctic Arthropods as special publications of the Society.

4. Received a $27,000 grant from NSERC to reduce page charges in the Canadian Entomologist for another year.

5. Increased the amount of each of the Society's two postgraduste awards from $500 to $1,000 beginning in 1981.

6. Published in the Bulletin, a review of the 1975 Manpower study.

7. Launched a survey to determine the current employment of entomology graduates from Canadian universities during the past ten years.

8. Commented on MOSST's publication "Biotechnology: a Development Plan for Canada". We expressed concern about the inherent risks of the expanding use of pathogens for insect control and the need for their strict regulation under the Pest Control Products Act. MOSST has agreed to include this issue in discussions of regulation with different branches of government. We pointed out also that a shortage of insect pathologists exists in Canada.

9. Wrote to the Minister for MOSST to express the Society's concern about the inadequate funding of research in general and the insufficient support of NSERC. Since the letter was written, there has been a significant increase in funding for NSERC. I have received replies from the Honorable John Roberts and the President of NSERC together with detailed information on the increased budget.

10. Wrote to the President of the BCC to:

    1. express concern over its withdrawal from SCITEC and to request reconsideration of this decision;
    2. indicate our stand on federal hiring practices;
    3. ask the BCC to pursue the idea of establishing an Agricultural Research Council;

professionnels, Selon moi, l'un ne va pas sans l'autre. Par la suite, je lui ai demandé, si selon lui, on devait engager les administrateurs des associations d'ingénieurs seulement pour des contrats de 2 ou 3 ans. Il m'a répondu que sans continuité il était impossible de réaliser des objectifs à long terme. J'ai répliqué "vous avez parfaitement raison!"

Dans une lettre récemment adressée au Premier Ministre, j'ai exprimé mon inquiétude sur le futur de l'entomologie, des entomologistes et du support pour la recherche et le développement. Suite à la demande expresse du Cabinet du Premier Ministre, les Honorables Eugène Whelan et John Roberts ont répondu. Une copie de ces lettres sera publiée dans notre Bulletin. En juillet dernier l'Honorable John Roberts annoncait une hausse importante du budget du CRSNG pour l'année fiscale 1981-82. En plus d'être bienvenue auprès des récipiendaires, cette nouvelle aidera le CRSNG à réaliser ses objectifs. Acutellement il y a un manque de main d'ouevre qualifiée en sciences physiques et dans le secteur connexe au génie. Comme le MOSST considère que le secteur de la technologie avancée est le plus susceptible de fournir des postes pouvant stimuler l'économie, il y encouragera donc la recherche et le développement. Reste à savoir si la formule de répartition entre le gouvernement, l'industrie et les universités proposée par le MOSST sera efficace. Puisque nous sommes une société de biologistes nous devons nous assurer que la recherche et le développement des sciences naturelles ne souffriront pas de cette emphase sur les sciences physiques. Nos resssources naturelles renouvelables demeurent l'assise principale de notre économie et je ne crois pas que tous les problèmes aient été résolus dans ce domaine.

Le CRSNG a récemment initié un programme de bourses de recherche universitaire pour les Ph.D. qualifiés avice expérience postdoctorale. Les récipiendaires pourront occuper des postes de chercheurs universitaires sans permanence pouvant durer jusqu'à 5 ans. Si bienvenu soit-il, ce programme n'en demeure pas moins une autre forme de poste contractuel. Encore une fois, en tant que membres d'une société scientifique nous devons nous assurer que ce programme, ou encore d'autres du même genre, bénéficient au maximum à la science, aux scientistes et à la nation, et ne deviennent pas suelement une forme de contrat d'apprentissage.

*Réalisations et Actions*

Il y a un temps pour planifier et un autre pour mettre les idées planifiées en pratique. Evidemment les deux aspects sont essentiels à la réussite de tout projet. Au cours de l'année courante nous avons mis en marche des projets proposés il y a maintenant quelques années, de même que formulé, de nouveaux plans pour le futur. J'aimerais rapporter ici les réalisations suivantes:

1) Obtention de l'approbation et du support du Gouvernement au project de la Société concernant l'étude de l'impact économique des insectes nuisibles sur certaines récoltes au Canada. Cette étude de 2 ans fournira les données quantitatives sur les pertes de rendements et les coûts des interventions de contrôle.

2) Changement de la méthode de financement des mémoires de façon à permettre à la Société d'en continuer le parrainage et la publication. Le coût sera partagé entre la Société, les abonnés, de même que les membres ou membres étudiants qui désireront se les procurer. Cette formule sera à l'essai en 1981 et 1982 pour en vérifier l'équilibre budgétaire.

3) Publication de "La Bibliographie de l'Artique" et "Les Arthropodes de l'Arctique" comme publications spéciales de la Société.

4) Obtention d'un octroi de $27,000. du CRSNG permettant de réduire encore cette année le prix d'une page dans notre revue "The Canadian Entomologist".

5) Augmentation, dès 1981 du montant des 2 bourses postgrades accordées par notre Société et qui passerons de $500. à $1,000.

6) Publication dans le Bulletin d'un sommaire de l'étude de 1975 sur la main d'ouevre.

7) Début d'un sondage sur la situation actuelle de l'emploi pour les gradués en entomologie des 10 dernières années dans les universités canadiennes.

8) Point de vue sur la publication du MOSST intitulée "Biotechnologie: un plan de développement pour le Canada". Nous avons exprimé nos craintes sur les risques encourus suite à l'utilisation croissante des pathogènes pour le

4. note the lack of communication on issues that concern the ESC;

5. justify a $2.00 per Canadian member increase in fees.

The President of the BCC in his reply, indicated that consideration was being given to rejoining SCITEC, that the issue of an Agriculture Research Council is alive, and that the increase in fees is necessary because of inflation.

11. Wrote to each of 33 cabinet ministers and two leaders of oppostion parties to ask which organization they would consult on matters of science. Eighteen gave specific information. The organizations cited most frequently were operational departments of government. SCITEC was mentioned by the Honorable G. Lamontagne, and the BCC by the Honorable E. Whelan. Both were in a list of 56 industrial and scientific associations provided by the Honorable John Roberts.

12. Prepared a list of accomplishments of the ESC during the past twelve years and forwarded it to SCITEC.

13. Ensured representation at the joint meetings of the Entomological Societies of Saskatchewan and Alberta, Saskatoon; 16th International Congress of Entomology Kyoto, Japan; Entomological Society of America, Atlanta; Entomological Society of Ontario, London; Acadian Entomological Society, Kentville; the BCC; Scientific Committee of the Biological Survey of Canada (Terrestrial Arthropods); Committee of Parliamentarians, Scientists and Engineers (COPSE) in part sponsored by SCITEC; and most recently the 1981 meeting of the Entomological Society of British Columbia.

14. Approved the selection of this year's nominees for the Gold Medal, C. Gordon Hewitt Award, Criddle Award, seven fellowships, and two scholarships.

15. Proposed for Governing Board approval, a nominee for the Secretary's position.

Space does not permit listing all Society activities. I should mention however, that, thanks to all those involved with the Canadian Entomologist, it continues to enjoy the status of a highly reputable scientific journal.

Actions still pending

1. Last December, the Société entomolgique du Québec expressed concern about the registration of an oil-based Bt insecticide as a biological insecticide instead of a chemical insecticide. In the interest of environmental protection and public safety, the Québec Comité entomologique hoped that the ESC would take action to stop or reverse the decision on the labelling of this formulation. Letters were sent to the Pesticide Seciton of Agriculture Canada for more information.

2. The ESC is continuing to investigate the possibility of publishing the handbook series, "The Insects and Arachnids of Canada" which to date has been published by Agriculture Canada.

3. We are seeking ways and means of having faster delivery of the Bulletin to members.

4. The Society is investigating the potential for sustaining memberships and considering a membership drive in Canada. A membership kit in English and French is being prepared.

5. A proposal was developed to assess the manpower situation in Entomology from 1976 to 1986. The purpose is to assess the accuracy of the 1976 survey projections and to predict requirements for the next five years. This proposal will be submitted to the government for funding.

The role and responsibilities of the Society have changed over the years. Entomologists can no longer meet their needs by dissemination of scientific knowledge at conferences and in journals. Individual and umbrella societies must act as consultants, advisors, and participants in the development of a national science policy. The ESC must be able at all times to present or represent the best interests of entomology. To accomplish this, it may have to become a lobbying group for entomology. If this happens, I would envision a paid executive-secretary assuming this role on behalf of the Society.

contrôle des insectes et le besoin d'une réglementation stricte à ce sujet dans la loi sur les pesticides. Le MOSST a accepté d'aborder ce sujet au cours des discussions sur la réglementation, avec les différents secteurs gouvernementaux. Nous avons aussi signalé la pénurie de pathologistes des insectes au Canada.

9) Lettre au Ministre responsable du MOSST pour lui faire part des inquiétudes de la Société au sujet du financement inadéquat de la recherche en général, et des fonds insuffisants du CRSNG. Depuis l'envoi de cette lettre il y a eu augmentation significative du budget du CRSNG. L'Honorable John Roberts et le Président du CRSNG m'ont fait parvenir l'information détaillée sur l'augmentation du budget.

10) Lettre au Président du CBC pour:

a) Exprimer nos inquiétudes suite à son retrait du SCITEC et demander une reconsidération de cette décision.

b) Faire connaître notre position sur les politiques d'engagement du Gouvernement Fédéral.

c) Demander au CBC de donner suite à son idée sur la formation d'un Conseil de Recherche Agricole.

d) Signaler le manque de communication sur les aspects touchant la SEC.

e) Justifier l'augmentation de $2.00 par membre canadien.

Dans sa réponse, le Président du CBC a indiqué, (i) qu'il considérait la possibilité de se joindre de nouveau au SCITEC, (ii) que l'idée d'un Conseil de Recherche Agricole existait toujours et, (iii) que l'inflation rendait nécessaire l'augmentation des frais.

11) Lettres à 33 ministres du Cabinet et aux 2 chefs de l'Opposition pour leur demander quelles organisations consulteraient-ils sur des questions scientifiques. Dix huit ont retourné des reseignements précis. Les organisations les plus fréquemment citées furent les départements opérationnels du Gouvernement. Le SCITEC a été mentionné par l'Honorable G. Lamontagne et le CBC par l'Honorable E. Whelan. Les deux organismes figuraient sur une liste de 56 associations industrielles ou scientifiques fournie par l'Honorable John Roberts.

12) Remise au SCITEC d'une liste des réalisations de la SEC au cours des 12 dernières années.

13) Représentation de la SEC aux réunions conjointes des Sociétés Entomologiques de la Saskatchewan et de l'Alberta à Saskatoon; au 16e Congrès International d'Entomologie à Kyoto au Japon; à la réunion de la Société Entomologique des Etats-Unis à Atlanta; à la réunion de la Société Entomologique de l'Ontario à London; à la réunion annuelle de la Société Entomologique de l'Acadie à Kentville; au CBC; au Comité Scientifique de l'Inventaire Biologique du Canada (Arthropodes Terrestres) ; au Comité des Parlementaires, Scientistes et Ingénieurs (COPSE) en partie parrainé par le SCITEC; et plus récemment à la réunion annuelle de la Société Entomologique de la Colombie Britannique.

14) Approbation pour l'année en cours du choix des récipiendaires: de la Médaille d'Or; du prix C. Gordon Hewitt, du prix Criddle, des 7 compagnons de la Société et des deux boursiers postgrades.

15) Proposition pour approbation par le Bureau de direction d'un candidat pour le poste de secrétaire. L'espace ne me permet pas d'énumérer ici toutes les activités de la Société. Je me dois toutefois de remercier tous ceux qui travaillent pour le "Canadian Entomologist" qui jouit toujours d'une excellente réputation comme revue scientifique.

*Actions en suspens*

1) En décembre dernier la Société Entomologique du Québec exprimait ses inquiétudes suite à l'enregistrement d'un insecticide au B.t. à base d'huile, comme insecticide biologique plutôt qu'insecticide chimique. A la fois pour la protection de l'environnement et de la santé publique, le Comité Entomologique du Québec espérait que la SEC prendrait position pour arrêter ou renverser la

We must soon re-address the question of what to do with the Society's reserve fund originally ear-marked for a building.

Before long, retirements will exceed recruitment and we must consider the effect on our membership strength.

It has been projected that in Agriculture Canada alone 500 new people will be required to increase Canada's R & D effort to 1.5% of GNP. We must see to it that a fair share of these are entomologists.

I shall end this address with an appeal and a caution. I appeal for greater member participation in Society activities. The Society is not the executive council, governing board, president or committee chairman. It is us! What the Society has done, is doing, and will do depends on our interest and input. It has accomplished many things and has earned a considerable measure of respect in the scientific community. However, we cannot bask in the reflected glory of past accomplishments. The Society is a visible manifestation of our togetherness as a group of scientists who, in spite of diverse interest and backgrounds, are banded together in the promotion of entomology.

I caution those who will guide the Society to be mindful of the diversity of interests within our membership - interests that are influenced by age, geography, culture, scientific background, field of work, employment. Opinions about the Society's action are often influenced by this diversity. Therefore, we must deal fairly but tactfully with sensitive issues, always keeping in mind the interests of the Society and of entomology. I am confident that these interests will be served by incoming President Glenn Wiggins and his competent team.

Lastly, on behalf of all of us, I am pleased to thank John Laing for his immensely valuable service as secretary during the past three years and to welcome Glen Wylie as his capable successor. The job of secretary is not only time-consuming but vital to the operation of any organization. We are fortunate in having had and continuing to have, conscientious, competent people in this important position.

## PERSONALIA

Kenneth G. Davey has been named Dean of Science at York University, Ontario, beginning in September 1982. Dr. Davey joined York in 1974 as professor and chairman of the department of biology. Previously he taught parasitology and biology at McGill University and was director of the Institute of Parasitology there. He is now president of the Canadian Society of Zoologists.

A. Murray Fallis, Professor Emeritus at the University of Toronto was elected an Honorary Member of the Canadian Society of Zoologists at its annual meeting in May 1981. Dr. Fallis was formerly director of Parasitology at the Ontario Research Foundation and head of the Department of Parasitology at the School of Hygiene, University of Toronto. He has gained an outstanding international reputation as a scientist by his work on blood protozoa of birds and their insect vectors, especially on Leucocytozoon transmitted by Simuliidae. He has also published on trematodes, cestodes, nematodes and other arthropods. He also made his mark as a teacher of both undergraduate and graduate students. He has the distinction of being a fellow of the Royal Society of Canada. He is president of the next International Congress of Parasitology which will be held in Toronto in 1982.

William W. Judd retired in early 1981 after 35 years of teaching zoology: 31 years at the University of Western Ontario, London and 4 years previously at McMaster University, Hamilton. He received the honorary designation of Professor Emeritus at the University of Western Ontario's spring convocation. For his longtime work as a conservationist and naturalist historian he was recently made an honorary member of the Federation of Ontario Naturalists.

décision sur l'étiquetage de cet insecticide. Nous avons communiqué par lettre avec la Section des Pesticides d'Agriculture Canada.

2) La SEC étudie toujours la possibilité de publier la série des guides "Les Insectes et Arachnides du Canada: laquelle était publé jusqu à maintenant par Agriculture Canada.

3) Nous cherchons aussi un système de livraison plus rapide du Bulletin aux membre.

4) La Société étudie des moyens de conserver ses membres, et envisage une campagne de recrutement à travers le Canada. Une version Anglaise et Française du formulaire d'adhésion sont acutellement en préparation.

5) Un projet d'évaluation de la situation de la main d'ouevre en entomologie entre 1976 et 1986 est en préparation. Le but est d'évaluer la précision des projections faites lors de l'étude de 1976 et de prédire les besoins pour les 5 prochaines années. Cette proposition sera soumise au Government pour fins de subvention.

Le rôle et les responsabilités de la Société ont changé au fil des ans. Les entomologistes ne peuvent plus répondre à leurs besoins seulement en propageant leurs connaissances scientifiques lors de conférences ou dans les revues. Les sociétés individuelles et le fédérations de sociétés doivent agir comme consultants, conseillers et participants dans le développement d'une politique scientifique nationale. La SEC doit être en mesure de présenter ou de représenter à tout moment, les meilleurs intérêts de l'entomologie. Pour ce faire elle peut être appelée à devenir un groupe de "pression" pour l'entomologie. Si cela se produisait, j'envisagerais l'emploi d'un secrétaire-exécutif rémunéré, qui assumerait ce rôle au nom de la Société.

Nous devrons bientôt trouver une mainère de disposer des argents de la réserve de la Société qui ont été originellement mis de côté pour la construction d'un édifice.

Très bientôt, le nombre de membres prenant leur retraite sera supérieur à celui des membres nouvellement recrutés. Nous devons donc penser à l'effet que cela pourra avoir sur la vitalité de notre association.

Il a été calculé qu'Agriculture Canada aurait à lui seul besoin d'un effectif supplémentaire de 500 personnes pour augmenter l'effort du Canada à la recherche et au développement à 1.5% du P.N.B. Nous devons voir à ce que les entomologistes soient équitablement représentés.

Je terminerai cette allocution par une invitation et un avertissement. J'invite les membres à une plus grande participation aux activités de la Société. La Société ce n'est pas l'exécutif, ce n'est pas le Bureau de direction, ce n'est pas le Président ou encore les présidents des divers comités. La Société c'est nous. Ce que la Société a fait, fait présentement et fera dépend de notre intérêt et de notre participation. Elle a accompli beaucoup, et s'est gagné beaucoup de respect de la part de la communauté scientifique, mais nous ne pouvons continuer de nous reposer sur la gloire des réalisations passées. La Société est une manifestation visible de notre cohésion comme groupe de scientistes, et qui en dépit des intérêts et formations divers, travaillent ensemble à la promotion de l'entomologie.

Je désire aussi que nos futurs dirigeants soient conscients de la diversité énorme des intérêts parmi nos membres, intérêts que varient selon l'âge, la géographie, la culture, le type de formation scientifique, la spécialisation et le type d'emploi. Les opinion sur les actions de la Société sont souvent influencées par cette diversité. En conséquence, nous devons traiter les questions délicates de façon adéquate, mais avec tact, tout en gardant à l'esprit les intérêts de la Société et de l'entomologie. Je suis convaincu que ces intérêts seront ceux de nouveau Président Glenn Wiggins et de son équipe.

En dernier lieu, en notre nom à tous je tiens à remercier John Laing pour son travail assidu comme secrétaire, au cours des 3 dernières années, et souhaite la bienvenue à son successeur Glen Wylie. Le poste de scretaire n'est pas seulement exigeant en temps, il est aussi d'une importance capitale pour la bonne marche de toute organisation. Nous sommes chanceux d'avoir eu et d'avoir encore des personnes consciencieuses et compétentes à ce poste très important.

## GOLD MEDAL ADDRESS

# REMARKS ON INSECTS AND THE HUMANITIES, OR SOME HUMAN SIDES OF ENTOMOLOGY

D. K. McE. KEVAN

Banff, Alberta, 6 October 1981

As scientists, many of us are ignorant of, and most of us overlook, are unaware of, or take for granted, the role that insects have played throughout history in respect of the arts and of humanistic activities and ideas in general. At best, a few express mild, superficial interest, but any serious consideration of the subject is almost invariably put off for a rainy day.

Perhaps this may not be one of those rainy days, but, in the short space available, I shall endeavour to scratch at the surface of a field about which volumes could be, though very little of a comprehensive nature actually has been, written. Nor is it possible here to document my talk with references, and I must leave you to search your own knowledge and experience to provide most of the examples of what I have to say.

There has, of course, never been a dividing line between the sciences and the humanities, as a little reflection will indicate. All sciences, save perhaps mathematics, have their origins in the humanities, and entomology is no exception. Unlike the sciences, as they are currently interpreted, the humanities, though they may involve the direct observation of natural phenomena, do not demand or involve the discovery of new facts directly related to such observations; nor do they demand or even encourage repeatability. Skill, imagination and the exercise of the intellect are of utmost importance, but demonstratable "facts" have, for the most part, little other than coincidental relevance.

Thus, I am not concerned here with the study of insects <u>per se</u>, nor even with certain borderline aspects of entomology that have a "pseudoscientific" content, but only with the role that insects have played, and continue to play, in relation to the philosopher, the artist, the craftsman, the composer, the performer and, of course, that elusive personage, the common man, regardless of observable truths.

It should, however, be emphasized that the humanities do not necessarily ignore entomological (or other) truths, for a work of art or a literary composition may incorporate accurate observation, without belonging to the world of science. Nevertheless, this is unusual, especially when creativity an all-important aspect of the humanities, is involved, and numerous representations of "quadruped hexapods" that we have all encountered exemplify this. Such "artistic" or "poetic" licence, is, however, often due to nothing but ignorance or carelessness, rather than to true licence, whereby some philosophical, aesthetic or other advantage is deliberately sought.

Long before man, however defined, appeared on this earth, insects formed a dominant feature of the environment into which he emerged and of which his rapidly developing consciousness became aware. His first reactions towards them were undoubtedly instinctive and with only limited insecticidal tendencies. Unlike his modern, Western counterpart, ancient man probably bore no malice towards the vast majority of insects around him, though he would certainly have swatted those that injured or irritated him, and would have scratched or rubbed himself as a result of their attentions, like all his ancestors and cousins, past contemporary and future. Insects undoubtedly must also have formed a fairly substantial part of his diet, but of what he may have thought about other kinds of insects during most of his sojurn on earth we find no trace.

It is only within the last 40 or so millennia that man's culture developed to the extent that he could in any way convey tangibly to posterity his thoughts and beliefs. This is not to say that previously (as subsequently) he may not have passed on oral or ritualistic tradition about insects (or any other subject) from one generation or location to the next. It simply means that we have no way of knowing what these might have been-though certain aspects of folklore could perhaps provide some clues.

As time passed, some more talented men, as a result of communal activity by all, wrested from their brief life-spans moments that could be devoted to pursuits other than those related to achieving the basic necessities of life. Early creative efforts involving carving and graphic inscriptions in stone and bone made their appearance, and thenceforth we have evidence that man was keenly aware of himself

and of other creatures, including insects, around him.

Insects are included among the earliest creatures to have been represented by man's artifacts (so far as we know), some dating from the Upper Palaeolithic, 30,000 or more years ago. Preserved since those times, we have amulets (?) representing several kinds of beetle, though the earliest figure of an insect that can be assigned without doubt to a recognizable genus is somewhat later-a mere 20,000 or so years old. This is a species of the cave-cricket genus Troglophilus scratched on a bison bone of the Middle Magdalenian culture of southern France. The earliest of the much more widely known representations of people gathering honey (with angry bees in attendance) are less than half its age.

Though there are, of course, great time gaps, it is evident that insects have been represented by man in graphic and plastic arts, almost as far back as recognizable human records go. Almost yesterday, in terms of man's history, when writing was invented, the literary arts added a new dimension, though this was really but an extension of what was already an old tradition. By the Sixth-Dynasty period of ancient Egypt, in hieroglyphic inscriptions on the ancient tombs, as well as in bas-reliefs, at Saqqarah, made more than 4½ millennia ago, various insects are shown-and these representations were surely patterned after even earlier models.

Most of the ancient representations of creatures (including insects) seem to have had either a religious or a symbolic significance, or both, which largely continued until comparatively recent times. Nevertheless, there is no reason to believe that this was always so. The remarkably accurate Upper Palaeolithic cave-cricket "etching" to which I have referred may simply have been a "doodle"- an example of the beginning of art's sake. If one looks at certain "stone-age" cultures that have persisted into the 20th Century, one may observe the same sort of thing, for there, again, religion and symbolism seem to predominate, as, for example, in the South African Bushman culture, in which figures of mantids symbolize one manifestation of their supreme deity, Kagen, while locusts signify an important food source. On the other hand, we have some examples of insect figures by the Aborigines of central Australia that have been executed simply "for fun".

Throughout the ages, moral philosophy has often been illustrated by animal, including insect, fables. I should like to mention one in particular from among the earliest examples that have survived. It is the story usually known to us in its English version as "The Grasshopper and the Ant". This particular entomological combination is actually quite recent in terms of the age of the story (and only about 200 years old, and purely Anglo-Saxon in origin, if, by "grasshopper", an acridid is meant), but whatever insects may be involved in the fable, the moral is that indolence and frivolity (as represented in this case by the "grasshopper") are to be condemned and industry and thrift (as represented by the ant) are to be extolled. Of course, many of us are aware that for "grasshopper" (or sometimes "cricket") one should, as in many current non-English versions, understand "cicada" (albeit an impossibly graminivorous one!). If the fable had originated with Aisopos (as is generally believed, though the earliest known versions of his stories did not include it), this would place it traditionally no earlier than the 6th Century B.C.E. It was however, undoubtedly old long before "Aesop's" time, and quite likely came from southern India whence it spread westwards to Europe by way of Hellenic colonies in the Near East, but also eastwards, for the Maoris of New Zealand have a version that indicates a southern Asian origin. Furthermore, the Aborigines of South Australia tell the same story (though the roles are played by a fly and a bee), suggesting very great antiquity. Who knows, but the fable may well have crossed the Bering Strait with early immigrants into North America from Asia, for the Okanagan of British Columbia also have an indigenous version (in which, however, the moral is more suited to the Amerindian disposition and boils down to "let live and do your own thing"!).

Folklore, narrative tales, and fables, superstitions, customs (including ceremony, ritual dance and pageantry) and many other cultural activities have referred, right down to the present day, to insects of many kinds. It would take a large book to cite specific examples, but such references go all the way from religious symbolism, magical incantation, divination and the casting of spells (like those of the ancient Eygptian Papyri and tomb inscriptions) to obscene jokes, and from exorcism (like the ancient Egyptian spell to cast out the evil creature Apshait, Father Francisco Alvarez' anti-locust antics in Ethiopia in 1520, or the 18th Century "textbook" on the subject by Don Pedro Ximenes) to expletive ejaculations, both profane and blasphemous.

It might also be appropriate to mention here as well as anywhere else, that, in various cultures, many kinds of insects other than those that provide products useful to man (including human and animal food), or in more recent context, that are of educational or scientific importance, are kept captive, often in elaborate special containers, for purely aesthetic reasons. This has been particularly for the insects' "songs", but may also be simply for their beauty, or even for sport (both for wagering on the outcome of contests between them, or as fish-bait). The culinary, and medical arts also deserve passing mention, for many kinds of insects are traditionally eaten by man, generally after some kind of preparation, or administered in some form or another to cure ailments or as aphrodisiacs. The adorning of the person with brightly coloured insects, mostly beetles and usually (but not always) dead, is also a widespread practice.

Another impact that insects have had upon human lore, since nobody knows when, has been in the naming of things, places and people. Anything from a cocktail or a watch-movement to a whole fleet of gunboats or entire motor-car designs, from mansions, hotels, public houses, cottages and streets to plant species and cultivars, and from pets and peasants to actresses or bishops and kings have borne insect names. Even attitudes in yoga or king-fu do so. The reasons for the bestowing of such names are often obvious, but frequently obscure.

Down the ages, and in almost every major culture, to varying degrees, insects have appeared, if not always with great frequency, then in endless succession, in graphic and plastic arts, later in literature, and eventually in the performing arts. Works both great and small have portrayed insects either as the principal subject or, more frequently, as incidental inclusions. These have had all manner of purposes from those with high moral, religious or quasi-religious significance to ridiculous foibles perpetrated for amusement only. They have varied from works of exquisite execution to popular, crude or ephemeral products. Many have been unique, but, especially (though not only) in later times, mass-produced "insect" artifacts have appeared, ranging from ancient Egyptian scarabs (both genuine and fake) to modern printed matter of every kind, novelties, toys and puzzles. One can demonstrate this (as everything else) without going beyond the orthopteroid insects.

The plastic arts provide us with examples of inscriptions, bas-reliefs, statues of all sizes, statuettes, ornaments, amulets, jewellery, seals, coins, medallions(!), mascots, novelties, toys, and so on, in endless variety. Almost every conceivable material has been used, from precious metals and gemstones to fibres and textiles of all descriptions (including motifs on everyday clothing, or full costumes). Insects have been modelled out of some of the most unlikely substances, such as rattan, sugar, chocolate, pastry, and even fruit and vegetables.

Graphic works of art embodying insects, other than those emblazoned on the foregoing, are found on walls, wooden panels, scrolls, canvasses, etc. and as watercolours, engravings and prints of many kinds, illustrations for books and periodicals of every description (from volumes of magnificent, but non-scientific, plates to drawings for and by children, political, humorous and other cartoons, comic-strips and visual jokes). They appear on book covers, calendars, greetings cards, picture post-cards, on wrapping and writing paper, and on virtually every other form of stationery, such as book markers, personal book-plates, scrap-book pictures, cigarette and other cards and even paper plates and cups. They appear on postage stamps, adhesive decorations and symbols, and they are also portrayed in artistic (as distinct from natural history) photographs and in almost every form of commercial (and political) art from advertising propaganda to labels. Much older than these manifestations is the use of insect designs in heraldry and on signs identifying business premises, which in turn have led to the development of institutional badges (including that of our own society), trademarks, logos and personal emblems. Perhaps the most bizarre of the graphic arts to embody (if one may be excused a pun) insects is the adorning and especially the tattooing of the human skin with images, mostly (but not always) of butterflies.

In literature, insects feature everywhere, whether the form is prose, verse, drama or any other. Most frequently they play only a subsidiary or incidental role, though often they take a central position, more particularly, but by no means exclusively, in works intended for children. Prose dealing with insects as central figures ranges from abstruse philosophical treatises to novels, plays and short stories, not to mention less serious and ephemeral efforts.

In verse alone an incredibly large amount of insect literature exists, even if one limits consideration to poems in which insects are important to the theme or mood. In frequency, butterflies, followed by bees, probably head the list of in-

sect groups mentioned in verse, but for sheer diversity the orthopteroid insects (grigs) together with cicadas (as I have shown elsewhere) surely surpass all others. "Grig" verse runs the whole gamut from the superb and the sublime to near-incomprehensibility or simply sheer nonsense and fun, from high ideals and tender sentiments to children's verse and doggerel. "Grig" verse may relate to history, mythology, religion, mystery, allegory, philosophy, sociology, politics, satire, humour and pornography, and it includes everything from epics, narratives and fine lyrics to folk ballads and other songs, or proverbs, catches and nursery rhymes. Such verses go back in written form for more than 4000 years (like those referring to dragonflies and their nymphs in the ancient Sumerian "Flood" epic "Galgamesh") and may be in almost any written language from ancient Akkadian to modern Zuñi.

The most recent forms to be recorded for posterity are in the realms of music and dance, though both, like drama, with which they are often combined, have extremely long prior histories. In this latter connection we include pageants, opera, muscial comedy and ballet, in all of which insects again may be sometimes incidental and sometimes central to the theme. "Insect" music can range from the melody or title of a song or a piece for a single muscial instrument to a full orchestral score (Nikolaĭ A. Rimskiĭ-Korsakov's[1] "Flight of the Bumble Bee" can

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[1]Not too many people are aware that his eldest son, Mikhail N. Rimskiĭ-Korsakov, was a noted entomologist. Who influenced whom entomologically?

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be both) or complete ballet suites (such as Jules Massinet's "Cigale").

I shall give inconclusion an example of the way in which fable, folklore, moral philosophy, politics, satire, parody, verse and song may all be directly entomological without being the slightest bit scientific. This following song, which reverts once more to the fable of the grasshopper and the ant, was written several years ago, merely because it was suggested that an entomological parody could not be accommodated to this particular melody ("The Singing Farce of the Merryman and his Maid" based upon an old Portuguese fisherman's song from W.S. Gilbert and Arthur Sullivan's tragic operetta, "The Yeomen of the Guard"). In the interests of bravity the following version is condensed from the original cumulative and repetitive duet, in which form it may be rendered, if so desired.

*THE WORK ETHIC? - A NEW VERSION OF AN OLD STORY*

*I heard a grasshopper sing-ing!*
*What was he say-ing?*
*He did say in a gay*
*and abandoned way*
*That he spent all the summer play-ing,*
*He sang with the merriest chirping lay,*
*As he hopped and he skipped in the fields all day,*
*That little he cared for the times ahead,*
*And whenever he tired he retired to bed;*
*But the trees grew gaunt and the grass grew scant,*
*So he hopped and he skipped to the provident ant*
*And he begged for a morsel of sustenance;*
*But the ant simply said as she glanced askance:*
*"You sang all the summer! now you may dance!"*
*And there was an end to his singing!*

*Ah me! Fiddle-dee!*
*Riddle-me-ree; why should it be*
*That his day was o'er and he hopped no more?*
*But there was an end to his singing!*

*Sequel: I heard a grasshopper sing-ing!*
*What was he say-ing?*

*He did say in a gay*
*and abandoned way*
*That he spent his whole year play-ing;*
*He sang with the merriest chirping lay,*
*As he hopped and he skipped in the fields all day,*
*That little he cared for the times ahead,*
*And whenever he tired he retired to bed;*
*For unkempt youth, with its cult uncouth,*
*Had taught grasshoppers a simple truth*
*What better create than a Welfare State,*
*Where ants are all taxed at exorbitant rate*
*To benefit 'hoppers, no matter the date,*
*So that there is no end to their singing?*
*Ah me! Fiddle-dee!*
*Cannot you see how happy you'll be*
*When the ants pay all, winter, summer and fall,*
*And you just do-your-own-thinging?*

* * *

(Editor's note: The actual address was enhanced by 60 fascinating and humourous illustrations.).

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*D. K. McE. Kevan receives the Society's Gold Medal for 1981 from President S. R. Loschiavo.*

## PERSONALIA

Curtis W. Sabrosky, Resident Cooperating Scientist, Systematic Entomology Laboratory, USDA has been awarded the L.O. Howard Distinguished Achievement Award for 1981 by the Eastern Branch of the Entomological Society of America. He is one of the world's leading and most influential entomologists and one of the most widely recognized and respected entomologists in the United States. His accomplishments in the broad field of insect systematics and zoological nomenclature during his 34 years with the Systematic Entomology Laboratory were recognized with the Department of Agriculture's Superior Service Award in 1951 and its Distinguished Service Award in 1980. His 188 papers on the systematics of 29 fly families have firmly established him as an outstanding taxonomist. He was the leader in the development and production of the 1961 edition of the International Code of Zoological Nomenclature and is a leader in its latest revision.

Dr. Sabrosky has been exceptionally active in professional societies where he promoted excellence in science and the need for practical application of scientific information. He has served as President of the International Commission on Zoological Nomenclature (1977), XV International Congress of Entomology (1973-76), Entomological Society of America (1969), Society of Systematic Zoology (1962) and Entomological Society of Washington (1972). We congratulate this distinquished member of ESC.

Evelyn C. Pielou biometrician, ecologist and biogeographer, was appointed in May 1981 as visiting professor of the Alberta Oil Sands Research Authority (AOSTRA) at the University of Lethbridge for a 3-year term. Dr. Pielou was formerly professor of biology at Queen's and Dalhousie Universities and is head of a research team based at an Alberta Environment station near Fort Murray funded by AOSTRA and the Alberta Environment Department.

*G. H. Gerber receives the Society's Hewitt Award for 1981 from President S. R. Loschiavo.*

## NOMINATIONS FOR ELECTION, 1982

The Nominating Committee (S.R. Loschiavo, Chairman) will prepare a slate of nominations for Second Vice-President, two Directors-at-Large and two members of the Fellowship Selection Committee.

Nominations from the membership may be submitted in writing over the signatures of at least three active members of the Society, with a signed statement from the nominee indicating his willingness to accept office if elected. Such nominations shall be submitted to the new Secretary, Dr. H.G. Wylie, Research Station, Agriculture Canada, 195 Dafoe Road., Winnipeg, Manitoba, R3T 2M9, not later than 30 April, 1982

Les nominations pour les postes de 2ème Vice-Président, deux Administrateurs-libres et trois membres du Comité de Selection des Compagnons devront parvenir au Secrétaire de la Société à l'adresse ci-dessus, sous la signature d'au moins trois membres actifs de la Société, en plus d'une déclaration du candidat exprimant son acceptation d'une telle nomination, et le postes s'il est élu.

## HONORARY MEMBERS—MEMBRES HONORAIRES

The Honorary Members of the Society are R.E. Balch, J.S.L. Daviault, R. Glen, G.P. Holland, J.J.R. McLintock, G.F. Manson, J.H.H. Philips, and A.D. Pickett.

The By-Laws permit the election of two more Honorary Members by the next mail ballot. Any five active members may submit, for consideration by the Membership Committee, the name of a member who has made an oustanding contribution to the advancement of entomology. The Committee may nominate members for election to Honorary Membership.

Submissions, accompanied by supporting statements (biography), should be sent to the undersigned by 15 February 1982 at the latest, for forwarding to the Committee. Previous submissions will not be considered by the Committee unless they are resubmitted.

Les Membres Honoraires de la Société sont R.E. Balch, J.S.L. Daviault, R. Glen, G.P. Holland, J.J.R. McLintock, G.F. Manson, J.H.H. Philips et A.D. Pickett.

Les status permettent l'élection d'un autre deux Membres Honoraires au prochain scrutin par courrier. Tout groupe de cinq membres actifs peut soumettre au comité responsable le nom d'un sociétaire qui a fait une contribution exceptionelle à l'avancement de l'entomologie. Le Comité des Membres peut nommer des sociétaires pour élection comme Membre Honoraire.

Les nominations, accompagnées des documents pertinents (biographie) doivent parvenir au sous-signé au plus tard le 15 février 1982, pour soumission éventuelle au Comité des Membres. Les nominations antécédentes ne seront pas considérées par le Comité s'il n'y a pas resoumission.

Dr. W.G. Friend
Department of Zoology
University of Toronto
25 Harbord Street
Toronto, Ontario
M5S 1A1

## FELLOWS OF THE SOCIETY—COMPAGNONS DE LA SOCIÉTÉ

Any four active members of the Society may present a nomination for Fellowship over their signatures. This nomination shall include a review of the nominee's contribution as support for the nomination. The contribution may be in any area - research, teaching, application or administration - and may be judged on the basis of contribution to and stimulation of the work of others, as well as by direct personal effort. It will usually, thought not necessarily, be cumulative over ten years or more.

Members are requested to submit, by January 28, 1982, their nominations marked "Confidential" to the Chairman of the Fellowship Selection Committee, as follows:

Dr. H.F. Madsen
Entomology Laboratory
Research Station, Agriculture Canada
Summerland, British Columbia
V0H 1Z0

Tout groupe de quatre membres réguliers de la Société peut formuler une mise en nomination de Compagnon de la Société. Cette nomination doit inclure un compte-rendu de la contribution du membre dans un ou plusieurs des domaines suivants: recherche, enseignement application ou administration. On pourra également évaluer cette contribution en rapport à la stimulation du travail d'autres personnes aussi bien que sur le plan personnel. Ceci couvrira en général, amis pas nécessairement, une période d'au moins dix ans.

Le nominations, portant le mention "Confidentiel", devront parvenir au Président du comité de sélection, à l'adresse ci-dessus, au plus tard le 28 janvier 1982.

## RIES MEMORIAL SLIDE LIBRARY

The Ries Memorial Slide Library is housed at the ESA National Office. This contains approximately 1,500 color photographs of insects and other arthropods. These are all excellent pictures and ESA encourages Entomologists, lecturers, teachers, and researchers to take advantage of the availability of this library.

The listing of the ESA Memorial Slide Library was published in Volume 26, no. 3 of the 1980 Bulletin of the Entomological Society of America. Slides are available for purchase or reproduction in publications.

Slides used for private or nonprofit, educational purposes can be purchased at the cost of $2.00 each.* Individuals or establishments ordering slides for reproduction in publications are charged $25.00 per slide* for a one-time use.

A credit line acknowledging "ESA Ries Memorial Slide Library" is required on all photographs used for educational or publication purposes. For more information on the ESA Ries Memorial Slide Library contact: Curator, Ries Slides, ESA National Office, 4603 Calvert Road, College Park, MD 20740, U.S.A. We welcome donations of slides to build a bigger and better reference collection. To add to this library send in your slides labeled for identification purposes.

*Prices subject to change without notice.

## RETIREMENT

Dr. William Rob Richards has worked for 27 years as a Research Scientist in the Hemiptera Unit, Biosystematics Research Institute, Ottawa. Rob's major interest has been with Homoptera especially Aphididae, Coccidae and Chermidae. He also has been responsible for identification of orders Thysanoptera, Collembola and Psocoptera. After he retires on 30 November 1981, he plans to raise pheasants at Golden Lake, Ontario.

## REQUESTS

1. I am beginning studies on the taxonomy and distribution of the Robber Flies (Diptera: Asilidae) and Mantisflies (Neuroptera: Mantispidae) of B.C. and Canada respectively. If anyone has the opportunity to collect these insects, I would be happy to receive specimens. Rob Cannings, Entomology Division, B. C. Provincial Museum, Victoria, B.C. V8V 1X4

2. If anyone has used E-Z Mosquito Repellent Tablets or similar vitamin pills, would they please report their findings to me? P. Belton, Department of Biology, Simon Fraser University, Burnaby, B. C. V5A 1S6.

# AUDITOR'S REPORT

To the members of ENTOMOLOGICAL SOCIETY OF CANADA

We have examined the balance sheet of the Entomological Society of Canada as at December 31, 1980 and the statement of financial activity for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

As is usual in organizations of this kind, it was not possible to verify completely the revenue from all sources and therefore the statements show the recorded revenue.

These financial statements do not include the accounts of the Entomological Society of Canada Scholarship Fund.

In our opinion, subject to the foregoing, these financial statements present fairly the financial position of the Society as at December 31, 1980 and the results of its operations for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Ottawa, Ontario.
August 25, 1981.

Thorne Riddell & Company
CHARTERED ACCOUNTANTS.

ENTOMOLOGICAL SOCIETY OF CANADA
(Incorporated under the laws of Canada)

## BALANCE SHEET—DECEMBER 31, 1980

| ASSETS | 1980 | 1979 |
|---|---|---|
| Cash | $ 72,929 | $ 49,554 |
| Accounts receivable | 23,199 | 48,054 |
| Accrued interest receivable | 4,937 | 5,144 |
| Term deposit - 9 3/4% - due January 15, 1980 | 30,000 | 25,000 |
| Government and government guaranteed bonds - at cost - (quoted value $78,606; 1979 - $57,637) | 94,394 | 69,732 |
| Other bonds - at cost - (quoted value $100,100; 1979 - $103,700) | 110,000 | 110,000 |
| Owing from Entomological Society of Canada Scholarship Fund | 11,303 | - |
| | $346,762 | $307,484 |

| LIABILITIES AND SURPLUS | | | |
|---|---|---|---|
| LIABILITIES | | | |
| Accounts payable and accrued liabilities | | $ 12,196 | $ 2,924 |
| Prepaid membership, subscriptions and reprints | | 27,546 | 36,758 |
| | | 39,742 | 39,682 |
| SURPLUS | | | |
| Balance, beginning of year | | | |
| As previously reported | 267,802 | | 248,255 |
| Adjustment of membership fees for the preceding year | - | | 6,090 |
| As restated | 267,802 | | 242,165 |
| Net revenue for year | 39,218 | | 25,637 |
| Balance, end of year | | 307,020 | 267,802 |
| | | $346,762 | $307,484 |

# STATEMENT OF FINANCIAL ACTIVITY

YEAR ENDED DECEMBER 31, 1980

| | 1980 | 1979 |
|---|---|---|
| REVENUE | | |
| Regular memberships | $ 27,048 | $ 22,776 |
| Student memberships | 1,950 | 2,010 |
| Sustaining memberships | 400 | 298 |
| Subscriptions | 49,897 | 42,261 |
| Sale of reprints including page charges | 52,015 | 91,223 |
| Sale of back issues | 4,662 | 3,968 |
| Publishing "Memoirs" | 40,502 | 28,107 |
| Interest earned | 25,779 | 20,805 |
| Gains on currency exchange, net of bank charges | 7,860 | 8,285 |
| Government grant for scientific publications | 25,000 | 5,000 |
| Miscellaneous income | 1,263 | 1,167 |
| | 236,376 | 225,900 |
| EXPENDITURE | | |
| Publishing costs - "Canadian Entomologist" | 65,745 | 85,729 |
| - bulletins | 12,353 | 11,560 |
| - reprints | 3,351 | 6,017 |
| - memoirs | 37,803 | 22,125 |
| Editorial committee | 1,679 | 2,063 |
| Annual meeting - grants | 2,000 | 1,600 |
| - travel and expenses | 15,604 | 10,225 |
| Other societies - dues and grants | 3,793 | 2,251 |
| Salaries | 38,423 | 35,661 |
| Directors' meeting expenses | 2,140 | 1,225 |
| Other committee expenses | 2,951 | 1,682 |
| Honoraria to managing Council | 1,600 | 1,600 |
| Canada pension and unemployment insurance | 1,498 | 1,645 |
| Student encouragement | - | 72 |
| Professional fees | 1,200 | 800 |
| Postage and office supplies | 8,595 | 7,879 |
| Telephone | 169 | 246 |
| Rent | 3,300 | 3,300 |
| President's discretionary expenses | 490 | 696 |
| Bad debt expense | - | 5,335 |
| General expense | 753 | 987 |
| | 203,447 | 202,698 |
| Less recovery in excess of cost re Faunal Survey | 6,289 | 2,435 |
| | 197,158 | 200,263 |
| NET REVENUE FOR YEAR | $ 39,218 | $ 25,637 |

Note 1:

These financial statements have been prepared in accordance with generally accepted accounting principles for non-profit organizations.

## EXPLANATORY NOTES FOR THE AUDITORS' STATEMENT

The September through December 1980 issues of the Canadian Entomologist were published in 1981 and therefore the figures are excluded from the auditors' statement.

In December 1980 the sum of $10,000 was transferred from the reserve fund to the Scholarship Fund. The auditor's show this (in part) on the balance sheet under assests "Owing from ESC Scholarship Fund." The $10,000 should have been shown as an expenditure, thus reducing the net revenue for the year to $29,218.00.

Edward C. Becker
Treasurer

# ACTIONS OF THE GOVERNING BOARD

3-4 OCTOBER, 1981

*1. Standing Rules - Public Education*

Recommended changes to the Standing Rules and Committee Guidelines for the Public Education Committee, as presented by the By-Laws, Rules and Regulations Committee.

*2. Ad Hoc Photo Salon*

Did not accept the recommendation of the Ad Hoc Photo Salon to hold an annual Photo Salon in affiliation with the Photographic Society of America.

*3. Publications*

Announced that the Society publications, Arctic Bibliography and Arctic Arthropods were published. The former is available at a cost of $5.00 ($3.50 to Members) plus postage and handling, and at no charge to subscribers to the Memoirs. The cost of Arctic Arthropods is $35.00 ($24.50 to Members) plus postage and handling.

*4. Correspondance*

1. The President will write to registration officials in Ottawa to support the stand taken by the Société entomologique du Québec opposing the registration of a summer-oil based Bt formulation as a biological insecticide. The rationale for the opposition is that the oil component has contact insecticidal action. There is no objection to its registration as a chemical insecticide.

2. The President indicated that correspondance between him and the Prime Minister and other Ministers on the subject of increased federal government support for research and development in the renewable resources sciences would appear in the Bulletin.

3. Dr. Turnock informed the Board that his report on conference travel for federally employed scientists would appear in the Bulletin.

*5. Executive Council*

The President reported that that Society was well-represented at meetings of affiliate Societies, umbrella societies, Scientific Committee of the Biological Survey of Canada, and at international meetings.

*6. Treasurer*

Heard that the Society was financially solvent but concern was expressed about the auditor's report. The Treasurer recommended a change in auditors.

*7. NSERC Publication Grant*

1. Announced a $27,000 grant from NSERC to reduce page charges in The Canadian Entomologist for the year April 1, 1981 to March 31, 1982.

2. The President appointed an ad hoc committee consisting of G.E. Ball, E.C. Becker, J.E. Laing, F.L. McEwen, and G.B. Wiggins to prepare a publications grant proposal for 1982-83.

*8. Finance*

1. Approved having a business desk at the 1982 joint meeting of the ESO, ESA and ESC.

2. The First Vice-President will contact three affilitate Societies that currently have their combined dues paid to the ESC, and ask if they would collect affiliate Society dues directly from their members.

*9. By-Laws, Rules and Regulations*

1. Recommended that the deadline for submission to the Secretary, of nominations from the membership be changed from March 31 to April 30.

2. Recommended acceptance of all changes to the Committee Guidelines for the Elections Committee.

30. Recommended acceptance of proposed changes in the composition of the Science Policy Committee, and that appointments be made by the President upon recommendation of the First Vice-President and subject to approval by the Governing Board.

*10. Annual Meetings, 1982, 1983, and 1984*

1. Asked the Chairman of the Program Committee, Dr. F.L. McEwen to take under advisement, the suggestions that all graduate students who submit papers be allowed to present them.

2. Heard an oral report from P.W. Reigert on the meeting to be held jointly with the ESS in Regina, October 1-5, 1983.

3. Heard from R. Storch that the AES is setting up committees for the joint meeting with the ESC in 1984.

*11. Employment*

Recommended that the Society's unsolicited proposal to conduct a "Manpower Survey in Entomology 1976-86" be submitted to the federal government for funding.

*12. Science Policy*

Adopted the "Statement of Definitions and Principles and Science Policy" prepared by the Sciencie Policy Committee.

*13. Scientific Committee of the Biological Survey of Canada (Terrestrial Arthropods)*

The President will write a letter of thanks and congratulations to Dr. Hugh Danks and to the Scientific Committee for their endeavours resulting in the publication of Arctic Arthropods and Arctic Bibliography.

*14. Fellowship Selection*

The President reported that a survey on the distribution of Fellows residing in Canada showed that they were distributed about evenly between eastern and western Canada in proportion to the number of Members in each province.

*15. Insect Common Names and Cultures*

Referred the proposed changes to this Committee's guidelines, to the By-Laws, Rules and Regulations Committee.

*16. Common Names for Pest Control Chemicals*

Agreed to discontinue sending a representative to the Canadian Standards Association Committee for Common Names for Pest Control Chemicals.

*17. Membership*

The President reported on the membership kit being prepared in English and French to be used in a membership campaign in Canada.

*18. Executive-Secretary*

Agreed not to fill the position of Executive-Secretary for the present.

# MINUTES

## 31st ANNUAL GENERAL MEETING

Banff Centre
Banff, Alberta

7 October 1981

President S.R. Loschiavo called the meeting to order at 3:30 p.m. There were approximately 75 persons in attendance.

B.J.R. Philogène moved, G.H. Gerber seconded that the Agenda be accepted as circulated. Motion carried.

1. Notice of Meeting

The notice of this meeting was published in the Bulletin, Vol. 13, March 1981.

2. Proxies

There were no proxies received.

3. Deceased Entomologists

A moment's silence was observed in memory of G. Doerkson, E.M. Duporte, R.L. Furniss and J.A. Rudinsky.

4. Minutes of the Thirtieth Annual General Meeting (1980)

The minutes were published in the Bulletin, Vol. 12, December 1980.

J.A. Shemanchuk moved, R.H. Storch seconded that the minutes be accepted as published. Motion carried.

5. Business Arising from the Minutes

There was no business arising from the minutes.

6. Report of the Governing Board

President S.R. Loschiavo presented a report to the 31st Annual General Meeting. This report will be published elsewhere in the Bulletin.

F.L. McEwen moved, H.G. Wylie seconded that the report of the President be accepted. Motion carried.

6.1 Changes to Standing Rules

The Secretary read the proposed changes to the Standing Rules of the Society:

To make the By-Laws, Rules and Regulations Committee a Continuing Committee of the Society.

Standing Rule 4c:

"The Committee shall be responsible for monitoring the minutes of the meetings of the Society and Board, and noting actions of the Board or general meetings that require changes in the By-Laws, Standing Rules, and Committee Guidelines. The committee shall recommend to the Board where such changes should be made. Changes in the By-Laws after approval of the membershp by a mail vote shall be submitted by the Secretary to the Department of Consumer and Corporate Affairs for approval. Changes in the Standing Rules shall be presented to the annual meeting for approval. Changes in the Committee Guidelines shall be submitted to the Board for approval".

G.H. Gerber moved, W.G. Friend seconded that this change to the Standing Rules be accepted. Motion carried.

To be added under Standing Rules for the Public Education Committee (41):

"The Directors representing Affiliates shall be ex officio members of the Publication Education Committee".

W.G. Friend moved, D.K. Kevan seconded that this change to Standing Rules be accepted. Motion carried.

To be added to the Standing Rules under Science Policy Committee (4 1) in place of the present Composition:

"Composition: Nine members: three appointed; and six ex officio as follows - First Vice-President who shall be designated Chairman, Second Vice-President who shall be designated Vice-Chairman, one SCITEC representative and one BCC representative (but not their alternates), Chairman of the Public Education Committee and the President. The term of office for appointed members will be three years.

B.D. Frazer moved, J.D. Shorthouse seconded that this change to the Standing Rules be accepted. Motion carried.

Change to Deadline for Nominations under Elections - Standing Rule X:

"Nominations for the office of Second Vice-President, Directors-at-Large, for the status of Honorary Member and for members of the Fellowship Selection Committee shall be submitted to the Secretary not later than the last day of April each year for inclusion on the ballot.

I.S. Otvos moved, G.T. Harvey seconded that this change be accepted. Motion carried.

Under Publications of the Society, Standing Rule XII, articles 4, 7 and 12:

XII (4) The annual subscription rate for The Canadian Entomologist shall be seventy dollars ($70.00), effective 1 January, 1981.

XII (7) The charge for publication in the Memoirs of the Entomological Society of Canada shall be forty-five dollars ($45.00) for each page, effective 1 January, 1981.

XII (12) The price of the Regular and Student Members for receiving all of the numbers of the Memoirs of the Entomological Society of Canada issued during a calendar year shall be seventeen dollars and fifty cents ($17.50), effective 1 January, 1981.

G.H. Gerber moved, R.D. McMullen seconded that these changes be accepted. Motion carried.

6.2 Report from B.C.C.

Dr. K.G. Davey, President of the B.C.C., spoke to the Annual Meeting about the role of the B.C.C. in influencing science policy in Canada.

7. Auditor's Report

The Treasurer presented the Auditor's Report to the members. Several inconsistencies in the report were commented on by the Treasurer and members of the Society.

E.C. Becker moved, D.C. Eidt seconded that the Auditor's Report be received with reservations. Motion carried.

It was the consensus of the members present at the meeting that the Treasurer should have the Auditor's Report done again.

8. Election Committee Report

The Secretary read the Election Committee report. Those elected were:

| | |
|---|---|
| For 2nd Vice-President: | Ray F. Morris |
| For Fellowship Selection Committee: | A.W. MacPhee<br>B.J.R. Philogène |
| For Directors-at-Large: | G.H. Gerber<br>A.D. Tomlin |

9. Installation of New Officers

President S.R. Loschiavo turned the gavel and chair over to G.B. Wiggins as incoming President of the Society. Dr. Wiggins thanked Dr. Loschiavo for his service to the Society and asked him to escort the 2nd Vice-President, Ray F. Morris, to the dais.

10. Service Awards

President G.B. Wiggins presented S.R. Loschiavo, Past President, and J.E. Laing, outgoing Secretary, with Service Awards.

11. Election of Auditors

E.C. Becker moved, B.J.R. Philogène seconded that the Executive Council be empowered to appoint auditors for 1981. Motion carried.

12. Resolutions

President G.B. Wiggins asked Dr. R.D. McMullen to present the following resolutions on behalf of the Society.

1. Whereas the 31st Annual Meeting of the Entomological Society of Canada, having met jointly with the Entomological Society of Alberta in Banff, has enjoyed an outstanding program of scientific and social activities, and

   whereas the success of this meeting has been due largely to the hard work and dedication of the Joint Meeting Committee (W.A. Charnetski, General Chairman),

   be it resolved therefore that the Entomological Society of Canada express its appreciation to the Entomological Society of Alberta, its officers and members who served the Joint Meeting Committee.

2. Whereas the Government of the Province of Alberta and numerous commercial businessmen have provided generous financial support to the organizers of the meeting,

   be it resolved therefore that the Entomological Society of Canada express its gratitude for this assistance.

3. Whereas the Banff Centre, and in particular the Conference Division (Miss Catherine Hardie, Director), has provided excellent meeting rooms, organizational support, guest accommodation and courteous, efficient services for this meeting.

   be it resolved therefore that the Entomological Society of Canada express its appreciation to the Banff Centre.

4. Whereas the Government of the Province of Alberta has generously provided for the Joint Meeting Gala Banquet and similarly Dupont Canada, Incorporated the wines to be served at the Banquet,

   be it resolved therefore that the Entomological Society of Canada express its appreciation for these contributions so important to the social aspects of the meeting.

R.D. McMullen moved, G.H. Gerber seconded that the resolutions be accepted. Motion carried.

13. Other Business

President G.B. Wiggins spoke about the Achievement Awards of the Society and encouraged members to submit nominations for these awards.

President Wiggins called for other business. There was none.

14. Notice of the 32nd Annual Meeting of the ESC

The meeting will be held at the Royal York Hotel, Toronto, Ontario during the period of November 29th to December 3rd, 1982.

15. Adjournment

J.A. Shemanchuk moved, G.H. Gerber seconded that the meeting be adjourned.

## ACTIONS OF THE GOVERNING BOARD

8 October 1981

1. *Executive Council*

Approved the Executive Council for 1981-82 as proposed: G.B. Wiggins, President; G.E. Ball, First Vice-President; R.F. Morris, Second Vice-President; S.R. Loschiavo, Past President.

2. *Trustees*

Approved the Trustees for 1981-82 as proposed: E.C. Becker, Treasurer; J.E. Laing, Secretary until January 1982; H.G. Wylie, Secretary from January 1982; D.C. Eidt, Scientific Editor; C.A. Miller, Assistant Scientific Editor; D.M. Davies, Bulletin Editor.

3. *Committees*

Approved Committees and Representatives for 1981-82 as proposed by the President; a complete list appears in this issue of the Bulletin.

4. *Managing Editor*

Requested that the matter of a salary increase for the managing editor be first referred to the Publications Committee for a recommendation, then to the Finance Committee for comment.

5. *Resignation of Director*

Decided not to fill by appointment the position of Director-at-large left vacant by the resignation of M.D. Proverbs.

6. *Achievement Awards*

Aopted the expanded version of the criteria for Achievement Awards which appeared in the Bulletin for September, 1981, as the call for nominations to be circulated to members in the future.

7. *Bulletin Editor*

Accepted with regret the resignation of the Bulletin Editor, D.M. Davies, for personal reasons, effective on completion of the June 1982 issue; the President and the Publication Committee will seek suggestions for a successor, the appointment to be made as early as possible in 1982.

8. *Biological Control Review*

Requested that S.R. Loschiavo send a letter to the Minister of Agriculture to express the Society's long-standing interest in biological control and to indicate that the Society would undertake review and recommendations concerning biological control in Canada if appropriate support were forthcoming.

9. *Budget*

Approved the budget for 1982 as amended by the Treasurer.

Requested that the Finance Committee review with the Treasurer and with the Auditors the preparation of all financial statements in consistent format.

10. *Surplus Funds*

Requested the Finance Committee to review the Society's surplus funds, to provide justification for the cash surplus now on hand, and to invest funds from any bonds maturing in the coming year in 30-day high-yield term deposits.

11. *Photo Salon*

Agreed to eliminate the Photo Salon from the annual meeting of the Society.

12. *Mid-Term Meeting of Governing Board*

Agreed that the mid-term meeting of the governing Board be replaced by an interim meeting of the Executive Council in the spring of 1982, at the discretion of the President.

13. *Annual Meeting of the Governing Board*

Announced that the next Governing Board meeting will be held in Toronto at the Royal York Hotel November --, 1982, at the joint annual meeting of the Entomological Societies of Ontario, Canada and America.

## MOSST REPORTS LINK UNIVERSITIES TO R & D NEEDS

The Ministry of State for Science and Technology (MOSST) has released four background papers (numbers 14 through 17) relating enrolment trends and the supply of highly qualified manpower to Canada's research and development needs.

Paper No. 14 deals with enrolments and the types of degrees awarded at Canadian universities between 1972 and 1978. The study found - among other findings - that fulltime enrolment at the Ph.D. level in the natural sciences declined by one-fifth and in engineering and the applied sciencies, by one-third.

Paper No. 15 looks ahead to the year 2000. The study reiterates Statistic Canada's prediction (UA April 79) that full-time enrolment will level off in 1982 and then fall steadily until the mid-1990's.

Paper No. 16 reviews Canada's national research manpower capacity in the natural sciencies. It indicates that, in the university sector, about 25 percent of the country's R and D personnel is located in Quebec, 40 percent in Ontario and nearly 33 percent in the West.

Finally, paper No. 17 looks at Canada's future requirements for R and D manpower. It concludes that the existing capacity of universities to produce graduates in the applied sciencies is limited. The achievement of higher levels of R and D, says the study, will depend on the ability of the universities to meet this challenge.

Copies of the four papers are available from the communcations services divison, MOSST, 270 Albert St., Ottawa, Ont. K1A 1A1

# PLEA FOR R & D SUPPORT FOR AGRICULTURE AND FORESTRY

The Right Honourable Pierre Trudeau
Office of the Prime Minister
House of Commons
OTTAWA, Ontario

10 March 1981

Dear Mr. Prime Minister:

As President of a Canadian scientific society with roots that predate Confederation, I applaud your interest in, and support of programmes aimed at expansion of world food production. Your interest reflects a deep concern for the future well-being of mankind. Canada, with an economy based on food and fibre production from agriculture, fisheries and forestry, can play a major role in shaping this future. This fact is frequently taken for granted because we live in a country blessed with an abundance of renewable resources.

In large part, this abundance is the result of painstaking research. Canadian scientists improve the quality and yield of our food crops and our forests, and develop methods to protect them from diseases, insects, and micro-organisms, before and after harvest. They fight a continuing battle to keep ahead of new races of plant diseases and viruses, and new or resistant insect pests. The money invested in Canadian research in our renewable resources provides a highly profitable return to the people of Canada.

In recent years, it has become increasingly difficult to maintain an adequate research effort in the renewable resource sciences. The budget for total research and development fell from 1.3% of the gross national product in 1967 to 0.9% in 1979--one of the lowest among industrialized nations. Unless this trend is reversed, Canada's capacity to do the research needed to produce and protect our renewable resources will be severely restricted with serious economic consequences.

We, as entomologists, are concerned about the lack of expansion in entomological research effort in Canada. We, and our colleagues in related disciplines, recognize that only the government can provide the major support of long-term research necessary for continued productivity in our renewable resources, and for creating a research climate conducive to the career development of graduates from Canadian universities. Since much of agricultural research cannot or will not be done by industry, increased government support of industrial R and D will have little impact in agriculture and other renewable resource disciplines.

Therefore, Mr. Prime Minister, I ask that you and members of your Cabinet consider investing a more equitable share of our gross national product in research and development in an area of demonstrated capability and profit, namely, food and fibre production. I strongly urge you to ensure that the Government of Canada meet its commitment of 1.5% of GNP to research and development by 1985 and consider 1.9% as a realistic goal by 1990. Financial support by government must be continuous to ensure that fundamental and applied research in government departments and universities are done without interruption.

On behalf of the Entomological Society of Canada, I invite the careful consideration of this letter by yourself and your colleagues. I await your reply.

Yours sincerely,

S.R. Loschiavo
President

## MEETING ANNOUNCEMENT

The Second International Conference on Chitin and Chitosan will be held from July 12-14, 1982 at Sapporo, Japan. Particulars and Registration Forms from: A. Vardanis, Research Centre, Agriculture Canada, University Sub Post Office, London, Ontario N6A 5B7.

Mr. S.R. Loschiavo, President
Entomological Society of Canada

16 June 1981

Dear Mr. Loschiavo:

Thank you for your June 8 letter regarding federal support for agricultural research.

In my March 20 note to you, I assured you that your message would be communicated to the Prime Minister. I just want to add that I have also brought copies of your letter to the attention of a number of ministers and officials with a direct interest in government research programmes, among them the Minister of Agriculture and the Minister of State for Science and Technology.

Yours sincerely,

Paul Hanrahan
Office of the Prime Minister
Ottawa, Canada

Dear Dr. Loschiavo:

20 July 1981

Re: Reference 22217

Your letter, dated March 10, 1981 to the Prime Minister, has been brought to my attention by Mr. Paul Hanrahan from the Office of the Prime Minister.

The concerns which you have expressed regarding the significance of scientific research in maintaining the viability of our renewable resources in agriculture and forestry are recognized indeed as a factor important to the economic health of the country as a whole. I am particularly aware of the national and regional contributions by professionals in the Entomological Society of Canada since a large component of your membership is in our Research Branch.

I can assure you that the government is making every effort to meet the 1.5% of the GNP commitment for research and development. You will recall that in my letter to you dated May 21, 1981, I indicated the committees from which I obtain advisory information. I have replied recently to two agencies with which your Society is affiliated, SCITEC and CFBS, regarding the government's policy towards increase in the percentage GNP support for R&D.

Cabinet has reaffirmed its proposal to increase R&D expenditures in Canada to 1.5% of the GNP. On March 3, 1981 the Honourable John Roberts, Minister of State for Science and Technology and Minister of Environment, announced that the Federal government expenditures on R&D in 1981-82 will be $1,514 million, a $216 million, or 17% increase over the 1980-81 expenditures, in line with the government's R&D policy framework announced on January 19, 1981.

In addition to increases contained in the Main Estimates, Mr. Roberts announced that the government has approved a further $19.2 million for additional R&D programmes for 1981-82. Mr. Roberts pointed out that, in fact, the government has indeed met its commitment to increase its expenditures for natural sciences R&D.

I wish to thank you and the Entomological Society of Canada for the diligence you maintain in the critical areas of your professional scientific expertise. Your constructive concerns regarding the well-being of Canada are welcome, and I assure you personally that they will receive due consideration.

Yours sincerely,

Eugene F. Whelan
Minister of Agriculture
Ottawa, Canada K1A 0C5

Dear Mr. Loschiavo: 13 July 1981

The Prime Minister asked me to reply to your letter of March 10, in which you express concerns about the amount and continuity of funding for research and development activities in the food area. As Minister of State for Science and Technology, I have a particular interest in the government's overall support of R&D.

As you clearly recognize, the government does share your broad concerns. We recently made a visible and challenging commitment to raising our national support of R&D in Canada, with an accepted expenditures target of 1.5% of the gross national product. In context of the many competing demands for both public funds and for the attention of Ministers, gaining acceptance of the target was in itself an achievement. Furthermore, our current funding for federally-supported R&D actually exceeds the levels needed to reach the federal share of the target by 1985. In view of your obvious interest in these matters I am directing my officials to send you copies of additional background material which may be helpful to you.

There are of course other factors besides the overall expenditures to be considered. You correctly point out that increasing the levels of R&D support in industry may not have much effect in agriculture and renewable resources. Our planning framework does recognize the need to maintain a balance between the various roles of the government in the funding of university R&D, in supporting industry R&D, and in supporting government departments in pursuit of their various missions. In the case of agriculture, we recognize that here the public sector supports or performs R&D on behalf of a scattered industry, largely lacking the ability to perform its own research.

The present extent of federal support reflects the importance the government attaches to this area. In 1981/82 the government expects to spend $221.6 million on food science. The corresponding figures for 1980/81 and 1979/80 are $201.2 and $184.1 million respectively, indicating that expenditures in the area have been increasing steadily. The federal expenditures on food science are shared by a number of departments and agencies such as the Department of Fisheries and Oceans, the National Research Council and the Natural Sciences and Engineering Research Council. The major role of course, is played by the Department of Agriculture with estimated food science expenditures of $134.6 million in 1981/82. Another indication of the priority which the food area enjoys may be found in the fact that the amounts spent on scientific activities expenditures in the energy sector and rank ahead of federal expenditures on scientific activities in application areas such as health, natural resources or transportation.

These facts suggest that the federal government recognizes its obligation to promote a healthy R&D capability in Canada and is moving in a concerted way to meet the needs in its own particular areas of responsibility. The federal government is not alone, of course, in the field of R&D support. In reaching our national target both the industry and university sectors have contributions to make, and all sectors must work together to build an effective and economically-rewarding R&D effort. As we approach the target in the mid-eighties, we shall be pleased to consult with the scientific community and the other sectors with a view to setting an even more challenging target.

I understand that your March 10th letter was passed to my Cabinet colleague, the Honourable Eugene Whelan for reply; you will doubtless be hearing from him also. Your personal interest, and that of the Entomological Society of Canada in the further development of Canada's R&D capabilities is certainly appreciated.

Yours sincerely,

John Roberts
Minister of State
Science and Technology
Ottawa, Canada K1A 0A6

# MORE ON LANGUAGE VS MERIT IN FEDERAL HIRING

Mr. S.R. Loschiavo, President
Entomological Society of Canada

August 20, 1981

Dear Mr. Loschiavo,

The chairman of the Public Service Commission has been forwarded a copy of your letter of May 27, 1981 to the Right Honourable Pierre Trudeau concerning the staffing of French-essential positions at the Biosystematics Research Institute of Agriculture Canada. In the absence of the Chairman, I would like to take the opportunity to clarify Public Service objectives concerning the equality of both official languages and the equitable participation of their respective communities.

Selection based on merit goes beyond the mere choice of the candidate who is qualified from a technical point of view for a given position. It implies the fundamental right of all Canadian citizens, of whatever first official language or ethnic origin, to have equality of access to positions and career opportunities in the Public Service. Selection is then made in light of the needs of the federal department involved and the professional qualifications of each applicant.

In the case which you raised involving the Department of Agriculture, the information which we have reviewed shows that during 1979 and 1980, the department staffed some 130 positions in the Scientific Research (SE) group. Of these, 103 were identified as English-essential, and none were identified as French-essential. In the Biology Sciences (BI) group, 44 positions required the knowledge of English as a language of work, whereas only 11 positions required the knowledge of French. It is this significant disproportion in the identification of the language requirement of the positions, and consequently in the selection requirements, which tends to militate against the department's capacity to meet its official languages objectives and puts at risk the merit principle that we are trying to uphold.

In light of these circumstances, the department's decision to identify six French-essential positions seems a reasonable one, aimed at meeting the department's legal obligation to serve the Canadian public and other Public Service employees in the language of their choice. Moreover, the selection of two anglophones among the six candidates appointed to these French-essential positions serves to illustrate the equity of the staffing process.

Furthermore, the training which has been offered to some of the francophones who were appointed is in line with an established departmental practice, which has until now mainly benefited anglophone employees.

Since Treasury Board Canada is responsible for establishing the linguistic status of positions in the Federal Public Service, I have taken the liberty to forward a copy of the correspondence to its Secretariat.

I trust that these comments will assist you in appreciating more fully the efforts made by the federal government to ensure that Public Service positions are staffed within the spirit and intent of both the merit principle and the official languages program.

Yours sincerely.

Edgar Gallant, Chairman
Public Service Commission of Canada
Ottawa, Ontario K1A 0M7

c.c.: The Right Honourable P.E. Trudeau

The Honourable Edgar Gallant, Chairman
Public Service Commission

September 3, 1981

Dear Mr. Minister:

Thank you for the letter of August 20 written on your behalf, in reply to my letter of May 27 to the Prime Minister concerning the recent staffing of French-essential scientific positions in the Biosysmatics Research Institute of Agriculture Canada. Our Society firmly supports the merit principle in the hiring of scientists regardless of linguistic ability. However, I was interested in reading the views expressed in your letter. In fairness to all concerned with this question I shall bring your letter to the attention of the members of the ESC by requesting that it be published in the Society's Bulletin.

Sincerely,

S.R. Loschiavo
President, ESC

c.c. The Right Honorable P.E. Trudeau

# FOREST ENTOMOLOGY: CHALLENGES OF THE 80's

by
J.H. Cayford

Premier Brian Peckford of Newfoundland said in February, 1981 that he has reluctantly accepted a Royal Commission's recommendation that chemical sprays be used to fight a spruce budworm infestation that could eliminate the province's forest industry within a decade. Peckford said the chemical matacil will be used in 1981 to spray about one million acres of forest at a cost of $4.5 million. The Royal Commission says there is no evidence any of the available chemicals, such as matacil, fenitrothion or acephate, are dangerous to humans.

In early April 1978, Premier Regan of Nova Scotia firmly rejected a recommendation of a task force on wood allocation and forest management in Nova Scotia. The recommendations called for limited spraying for foliage protection, to be repeated until the budworm epidemic collapsed. The Premier stated "frankly, we're so strongly opposed to the aerial spraying of insecticides that I can't conceive reopening the debate." This decision reinforced a decision made a year earlier when "the Nova Scotia cabinet decreed that because of the possible hazard to public health and to the environment, aerial spraying of chemical insecticides will not be permitted."

The two foregoing statements, represent your most significant challenge of the 1980's. You have some tools for forest pest management but in many instances are unable to use them. Accordingly, you need either new techniques or you need to educate the public in such a manner that you will be able to use existing techniques. I would suggest that you need action in both areas if the forest resource is to be protected from economically important damage as a result of forest insects.

I have been asked to speak to you on some challenges facing entomologists in the 1980's. My first challenge is quite simple - forest entomologists must become part of the forest community. For too long, forest entomologists have seemed neither fish nor fowl - you are but a small component within the entomology scene, with most attention paid to agriculture entomology, and you are but a small component within the forestry scene.

I have a few specific points to make that indicate the relatively low profile of forest entomology and forest entomologists in this country.

continued ...

Challenge number three deals with the need to obtain more information on the human health aspects of forest protection programs. Concern for human health first became evident when it was postulated that a rare children's disease, Reye's Syndrome, was thought to be linked with spruce budworm spraying. Although this particular hypothesis has not been verified, the concern for human health continues to this day, and is a major factor to be considered insofar as the future use of chemical spraying as a forest management tool. Research on human health effects is beyond the scope of conventional forest entomological research programs and accordingly in the CANUSA spruce budworms research program has been given little consideration. There is a need for forest entomologists to play a leading role in promoting and inspiring medical research on the effects of forest insecticide spraying. Research might be first directed to those workers who are intimately associated with the spray programs. Both the CANUSA Program Managers and the Eastern Canada Spruce Budworm Council are currently trying to develop a more collaborative approach with government health authorities.

My fourth challenge to you is to learn more about the technology of large-scale aerial spraying - basically to develop improved strategies for chemical insecticide application.

Research in the pest management field is continually being directed towards alternatives to chemical control. There is, however, a serious concern among resource managers, that in our quest for biological control products, emphasis on improving those tools that we already have is lagging. As many land managers see it, the options that they already have are in peril. There is a major link between the human health issues that face aerial control operators and the efficiency of existing delivery mechanisms. It is well documented that with our present spray technology, only a proportion of the emitted volumes reach the target protection area, and an even smaller proportion impacts in the range of the pest insect. It follows that the remainder, known as off-target drift, adds an unnecessary pollution level to the surrounding area. It is to this off-target aerosol of insecticide that the greatest human health risk criticisms are directed. The challenge, and one that many feel we must respond to rapidly or lose the chemical option entirely, is to refine the delivery system and formulations in such a manner as to direct all, or the vast majority of the spray emissions to impact on the target areas. This would entail a revamping of the aircraft hardware, a better understanding of spray droplet behaviour, and the optimum formulation characteristics to achieve the desired results. It has been noted that despite the enormous sums being spent annually against the eastern budworm in chemical spray programs, spray application and drift have so far received scant attention in CANUSA programs. Fortunately, I feel we are making some progress here with recently announced programs by the New Brunswick Research and Productivity Council and by the Canadian Forestry Service.

The fifth challenge is to develop multi-disciplinary research teams to address forest insect problems. Thus, the spruce budworm should be considered in the context of a forest management problem rather than as an entomological problem. A review of CFS research projects indicates that by and large the entomological program is structured on a discipline basis. For example at the Great Lakes Forest Research Centre, there are projects dealing with both spruce budworm and with the management of spruce-fir forests. Multi-disciplinary research teams might well include specialists in such disciplines as forest entomology, forest pathology, silviculture, ecology, soils, and tree physiology and would focus on forest management problems of a given forest tree species or cover type.

Challenge six is the need to develop improved damage appraisal systems in order that losses from forest pests may be quantified and that loss statistics can be integrated with provincial inventory statistics to provide regional and national estimates of losses from insects and diseases. The forest insect and disease survey of the CFS is making an encouraging start in this decision but there is still a tendency for the survey to focus on insects and diseases, rather than on trees and forests. We also need better information on the prediction of losses over a 5- to 10-year time frame and we need more detailed information that will enable us to predict the future development of individual trees after insect or disease attack.

continued ...

(1) At one time, forest entomologists played an important management role within the Canadian Forestry Service. Now, however, only 4 of our 12 senior positions are occupied by entomologists. Not too many years ago forest entomologists were the dominant force within our forest insect and disease survey. Now the Director of the survey and five of six unit heads are forest pathologists.

(2) At the Canadian Forest Congress held in September 1980 the paper on insects and diseases was presented by a silviculturist, Dr. Gordon Baskerville. Indeed, Dr. Baskerville is one of the major spokesmen on the spruce budworm.

(3) At the University of Toronto, Faculty of Forestry, there is no forest entomologist among the permanent staff. At Lakehead, both forest entomology and forest fire are taught by the same staff member.

(4) In Mid-February, I attended a major forest conference in New Brunswick sponsored by 3 forestry associations, the Canadian Institute of Forestry, the New Brunswick Forest Products Association and the New Brunswick Association of Registered Professional Foresters. About 150 foresters were in attendance - but I saw only 5 entomologists. Of these, one is retired, two are no longer in entomology, while the other two are nearing retirement. Yet, the most important forestry problem in New Brunswick is the spruce budworm.

(5) The Canadian Institute of Forestry is the major national forestry organization in Canada. It is roughly comparable to the Society of American Foresters. Yet membership by our forest entomologists is very low. Within the Forest Pest Management Institute, a major National Institute, only 2 of 26 professionals are members. Of the 4 entomologists who are CFS Directors, 2 are not members of the CIF and most of our research scientists in entomology do not belong to the organization.

In contrast to forest entomologists, I believe that forest pathologists are well integrated into the forestry community. The difference may well be that the majority of our pathologists have a forestry degree, while the majority of our entomologists have a science degree. What we seem to need is a renewed of entomology within our forestry schools where entomology is at a low ebb.

The time is now appropriate for you to move out of your forest entomology mold and to stand up and be counted amongst foresters. It is widely accepted that forest protection is an integral part of forest management. Indeed without protection, there is little rationale for management. And with an increase in man-made forests and in intensive forestry, we are bound to encounter more and more forest pest problems. Specific examples here are the black army cutworm outbreaks in British Columbia in stands planted immediately after slash burning and the rapidly escalating importance of seed and cone insects attacking seeds orchards.

My second challenge relates to the need for new biological techniques for forest pest management and the need to refine our knowledge on those most promising techniques. The Baskerville Task Force Report of 1976 concluded that there was no real alternative to chemical spraying. However, one biological insecticide, Bacillus thuringiensis (B.t.) was considered operational. Baskerville went on to say:

> "use of B.t. may be indicated where some protection is desirable and the use of chemicals is precluded for environmental or social reasons, but it is not, at present, considered an adequate substitute for chemical insecticides in large-scale crop protection."

From my perspective, the situation described in November 1976 has not really changed, some 4-1/2 years later. Accordingly, I would challenge you to take stock of the current situation; assess what we know with respect to B.t., determine what we should know and develop programs to fill the knowledge gap. This topic must be pursued with vigor as forest managers are anxious to add B.t. to their arsenal of techniques in the fight against spruce budworm. There is also a need to pursue with vigor the use of pheromones. While several trials have been carried out, there seems to me to have been no overall strategy of pheromone research in Canada. You should also not ignore the opportunities that may be afforded through mass production and liberation of parasites and predators and through development of integrated pest management strategies that will involve the use of forest management practices as well as direct control methods.

Challenge seven is the need to apply information already known. This is a challenge not only for entomologists, but also for forest managers; failure to utilize available information is a reflection on both the researcher and the user alike. I believe we already have a lot of information available that is not being used. The challenge is for the research agencies to place increased emphasis on technology transfer, while management agencies must develop the entomological expertise needed to put research into practice.

Challenge eight is of particular concern to the CFS, but probably also to other major employers of entomologists. Basically, the age distribution of entomologists is skewed towards the older age classes. In view of the low level of current entomological graduate training in Canada, and particularly in forest entomology, it will be difficult to replace our older, experienced entomologists. In the 1980's many entomologists will be leaving the CFS, and their years of experience will be lost. Before these specialists retire, we should undertake a concerted effort to avoid the irreplaceable loss of the experience of a generation of entomologists. It is possible that the knowledge and experience of these scientists could be captured in computer simulations, which offer a convenient and useful "archiving" medium.

The ninth and final challenge is the need to increase our efforts on the development of preventive techniques of pest management as alternatives to control techniques. This will require that the CFS and other agencies rejuvenate the capability in insect population dynamics that has been seriously eroded in recent years.

In these remarks, I have tried to outline some of the challenges that I believe will be facing forest entomologists in the 1980's. During the next decade Canadian forestry will come of age. Our forest resources are barely sufficient to meet existing demands and intensive forest management will become the rule rather than the exception. Forest entomologists will be expected to play a more important role than in the past and I am confident that you can meet these challenges.

[1]Paper presented at 32nd Annual Western Forest Insect Work Conference, Banff, Alberta, March 2-4, 1981. Reprinted with permission from "The Forestry Chronicle", June 1981, pp. 107-108.

[2]Director General, Research and Technical Services, Canadian Forestry Service, Ottawa, Canada.

## MEETING ANNOUNCEMENT

Pour célébrer dignement son Cent Cinquantième Anniversaire, la Société entomologique de France, la plus ancienne société entomologique du monde, a décidé d'organiser une Première Conférence des Entomologistes d'expression française. Cette conférence - ouverte à tous les entomologistes français ou étrangers, professionnels ou amateurs, de toutes disciplines fondamentales ou appliquées - se tiendra à Paris, du 6 au 9 juillet 1982, au Muséum national d'Histoire naturelle. Elle donnera lieu à des conférences plénières, communications et tableaux de démonstration et sera suivie de quatre excursions sur le terrain. Toutes les facilités de temps pour les visites, consultations, contacts personnels, seront ménagées. L'ensemble des communications sera publié dans un numéro du Bulletin de 1982.

Afin de nous aider à préparer cette manifestation, il est demandé de retourner la fiche de préinscription à la Société entomologique de France, 45, rue de Buffon, 75005, Paris, France. Les personnes qui désirent recevoir des informations pourront s'adresser à cette dernière. Le montant de l'inscription est de 150,00F. L'éditeur du Bulletin SEC a reçu l'avis le 8 septembre, du Dr Jean-Pierre Bourassa, Vice-président, Société entomologique du Québec, Département de chimie-biologie, Université du Québec à Trois-Rivières, Casier postal 500, Trois-Rivières, Québec, G9A 5H7.

# COMMITTEE REPORTS

## ANNUAL REPORT OF THE SECRETARY—1981

During the past year I have recorded minutes of the meetings of the Governing Board, Executive Council, and the Society, prepared the Agenda for these meetings and sent out notices of meetings, as required, to the Executive, members of the Governing Board and Trustees of the Society. I have maintained the filing of the Society, updated copies of the By-Laws, Standing Rules and Committee Guidelines; prepared the ballots for the election; notified nominees of the election results and distributed minutes, reports, scholarship forms and the information as requested; prepared notices of meetings and of Society affairs for the Bulletin; provided liaison between committees of the Society and Governing Board, and between the Society and Affiliate Societies. Much of the time spent on Society business involved taking care of correspondence of the Society and day-to-day affairs of the Society.

I would like to thank the Executive, Trustees and members of the Governing Board for their help and advice during the past year. Since this will be my last Annual Report, I take this opportunity to thank all of you who have made my job easier during the past three years. I have enjoyed working for the Society and with many dedicated entomologists.

J. E. Laing

## PUBLICATIONS COMMITTEE

1. Cyclical delay in the publication of the Canadian Entomologist.

From time to time a delay occurs in the printing and mailing of the Canadian Entomologist, usually in the fall, followed by a return to normal scheduling. This cyclical delay insofar as it exists can be traced to Runge Press. As explained to me by the Scientific Editor, it is a problem of printer scheduling. Briefly, the printing of Can.Ent. is a "bread-and-butter" job at Runge Press- something that they can count on for continuing business. They can set it aside from time to time to accept one-time, lucrative jobs (apparently which occur in the fall of each year) because they know they do good work for us and that the cost and inconvenience would deter us from switching to another printer.

The Managing Editor reports a steady improvement in the date of publication of recent issues: the number of pages and publication dates have been creditable:

| | | | |
|---|---|---|---|
| 1981 | January | pub. 11 March | 80 pp. |
| | February | pub. 24 March | 96 pp. |
| | March | pub. 21 April | 88 pp. |
| | April | pub. 27 May | 96 pp. |
| | May | pub. 22 June | 96 pp. |
| | June | pub. expected 6 July | 112 pp. |

The postal strike, if continued much longer, will certainly throw this fine track record out of kilter.
Recommended that the Publications Committee continue to monitor publication dates of Can.Ent.

2. Front and Back Covers of Can. Ent.:

Beginning with the January 1982 issue, the front and back covers of Can. Ent. will have an altered format, in line with initiatives made in 1979 and 1980 by the Executive and Publications Committee. Notice to Contributors, which currently appears on the back cover of every issue, will be removed, and will be published once a year in the January issue, in the body of the journal, in English and French. The revised version, which will be called Instructions to Authors and their Secretaries, has been translated and both versions are in the Managing Editor's hands, ready for January 1982.

3. Publication of Memoirs

The Chairman provided advice and consultation to the Executive regarding new avenues of publication for Memoirs.

4. Guidelines: Publications Committee

Recommended that the Guidelines be updated, corrected and ammended as follows:

Composition: to be ammended as follows:
Six members, including the Chairman, one of which shall be bilingual in both official languages. Ex officio, the President, the Scientific and Managing Editors of the Canadian Entomologist and the Editor of the Bulletin of the Entomological Society of Canada.

Duties: to be corrected (4a) and up-dated (4b) as follows:
4a. Works with Scientific and Managing Editor to keep "Instructions to Authors and their Secretaries" in the Canadian Entomologist up to date.
4b. Works with the Scientific Editor to provide French language Résumés for papers appearing in the Canadian Entomologist.

5. Book Reviews

The Can. Ent. office receives approximately 50 books per year from publishers for review. This arduous task is the responsibility of the Publications Committee (guidelines 6: Duties). At least half of the books received for review deal with insect taxonomy and systematics, a subject which happens not to fall within this Chairman's expertise. Accordingly I have appointed one member of my Committee (Charlie Dondale from B.R.I.) to receive taxonomy books and find reviewers for them. All books now received by the Can. Ent. office in Ottawa are inspected by the Managing Editor and those of a taxonomic nature are forwarded to Dr. Dondale at B.R.I. Non-taxonomic volumes continue to be forwarded by the Managing Editor to the Chairman for review. This system speeds up the selection of competent reviewers and shortens considerably the time required to get a taxonomic work to its reviewer.

The Chairman thanks the Editors, committee members and others for their generous spirit of co-operation during the past year.

Respectfully submitted,

Robert P. Bodnaryk, Chairman.

## SCIENTIFIC EDITOR

In the 12-month period ending 8 September, 210 manuscripts were received, which is 3.75/week, approximately the same rate as last year. The disposition of these papers is detailed in Table I.

Table I MSS received in 12-mo. period ending 8 September 1981

| | ca.6 months (9 Sept. 1980 to 28 Feb. 1981) | ca.6 months (28 Feb. 1981 to 8 Sept. 1981) |
|---|---|---|
| Under review | 1* | 41 |
| Rejected | 14 | 12 |
| Withdrawn | 3 | 0 |
| To authors for revision | 7 | 22 |
| Accepted | 44 + 2* | 25 |
| Published | 35 | 1 |
| Combined with others | 3 | 0 |
| Total | 109 | 101 |

*Papers resubmitted after having been rejected

The final rejection rate for the first 6 months was 15% including 2 that were withdrawn because of inadequacies identified in the review process. It is encouraging that of two papers initially rejected, the authors were able to overcome the reasons for rejection by further study or supporting documentation; a third will probably be accepted. The rejection rate of the second 6 months, based on those reviewed, was 20%. The receipt and review of papers during this period was severely impaired by the postal strike and only now are things returning to normal.

The average time to publication for the last five issues, before the mail strike interfered, was 8.7 months (n=65, range 3-15). This is a further improvement from 8.8 months for the Dec. 1979 and Jan. 1980 issues reported last year.

Size of Journal: The Executive Committee, following their midwinter meeting, asked why The Canadian Entomologist has had fewer pages than before. I believe this reflects three factors: (1) Increased rejection rate because we have been more rigorous in applying the standards of acceptability. (2) Reduced numbers of pages per paper because we have been more rigorous in applying editorial standards. In particular, we have insisted on the elimination of verbosity, material irrelevant to the theme of a paper, and unnecessary tabular material. (3) A slight reduction in submissions because word has got about that acceptance standards are more strictly applied. I sincerely hope the Board and the membership finds fewer inferior papers in the Can. Ent. and the editorial quality improved.

Managing Editor: Since taking office as Scientific Editor in the fall of 1978, I have become increasingly aware of the extremely valuable service Margaret McBride renders as Managing Editor. I am continually amazed at the range of duties she performs, her remarkable knowledge of her job, and the long hours she works in the unfashionable tradition of working to the job, not the hours, and taking immense pride in her work. Miss McBride has incredible patience and perseverence with entomologists who occasionally behave like mules and with a publisher whose motive is totally different than that of the E.S.C. She never asks for promotion but says she is content. I believe she should be rewarded in proportion to what she does. She is presently at the top of the equivalent of an IS3 (Information Services Group) in the Federal Public Service. I have studied her job description according to the standards for the Information Services group and I recommend that she be promoted to the equivalent of the IS4.

Assistant Editor: Charles Miller, as you know, has been a source of considerable strength to the editorial board. The new policy of having the Scientific Editor and the new position of Assistant Editor in one place has facilitated action on manuscripts and allowed us to take advantage of consultation. I believe this arrangement should continue.

Associate Editors: We have an excellent panel of Associate Editors. Each is prompt when mails allow, gets good reviews and gives me lucid advice. All never lose sight of their role as the ally of the authors even when it is necessary to advise rejection of a MS. All are considerate of their reviewers and follow up when appropriate. I publicly thank them for their powerful support. Their names are listed in every Can. Ent. issue. Without them, the Society would have to hire at least one full-time Scientific Editor.

Finally, I thank you for the privilege of having served you another year.

Respectfully,

D.C. Eidt

## BULLETIN EDITOR

Efforts have been made to send the Bulletin numbers to press on the 15th of the appropriate months, but sometimes essential submissions arrive one to three weeks late, some delay occurs in printing or in the distribution from the ESC office in Ottawa. Volume 12 of the Bulletin (1980) contained 114 pages, compared to 116 pages for volume 11. Volume 13 may be slightly larger. Cost of the March 1981 issue (28 pages) was $1632.13, June issue (40 pages) $2060.98 and September issue (32 pages) $2049.48. Companies have been encouraged to advertise in the Bulletin, and Abbott Laboratories Ltd., Philips Electronics Ltd. and Cyanamid Canada Inc. have advertised in volume 13. The chairman of the Membership Committee might encourage Sustaining Members to use the Bulletin for their advertisements.

Members are urged to submit more news items for publication: news items about themselves, their colleagues, local amateurs, collecting trips made, meetings pending or attended, and activities of affiliated societies. In this way the Bulletin becomes of greater interest and service to Canadian entomologists.

D. M. Davies

# BIOLOGICAL SURVEY OF CANADA (TERRESTRIAL ARTHROPODS)

## Scientific Committee

Four members retired by rotation at the beginning of the year. Dr. J. Spence, Edmonton, was appointed in the place of Dr. G. B. Wiggins and Dr. D. K. McE. Kevan, Dr. J. V. Matthews, Jr., and Dr. G. G. E. Scudder were re-appointed, all for 3-year terms. More recently, Dr. I. M. Smith has resigned, on account of his considerable additional duties as Assistant Director of the Biosystematics Research Institute.

The Committee met in Ottawa on 9-10 April, 1981, and is due to meet again on 29-30 October. As usual, guests from several government departments also attended the meeting.

Dr. L. Lemieux, Director of the National Museum of Natural Sciences, informed the Committee that the Board of Trustees of the Museums Corporation had recently approved the establishment of the Biological Survey of Canada within the Museum.

## Activities of the Secretariat

The Director, Dr. H. V. Danks, has resumed a regular series of visits to entomological centres similar to those made during the Pilot Study. The aims of these visits are to discuss and promote the scientific projects and other objectives defined by the Scientific Committee, to gather and exchange information on work in progress on the Canadian fauna, to maintain an active list of requests for material and of other forms of cooperation requested, to update Secretariat registries of personnel and projects, and to give a continuing series of seminars on topics relevant to the Biological Survey. In all 22 such visits have been made, at centres from Victoria, B. C. to St. John's, Newfoundland. Dr. Danks also gave a paper on "Insects of the Arctic" at the 1980 Annual Meeting at Quebec City.

## Scientific Projects

As reported already, the Committee has discussed and selected for special development a limited number of diverse projects, considered to be of scientific importance and timely and feasible. They are as follows:

Illustrated keys to the families of insects in Canada
Arthropod fauna of the Yukon
Arthropod fauna of glacial refugia in Canada
Arthropod fauna of the prairies
Insect fauna of freshwater wetlands
Aquatic insects of Newfoundland
Arthropod fauna of springs

Short accounts of these projects were published in the June issue of the Bulletin (13: 2, pp. 46-47).

Having completed the book Arctic Arthropods ( see below), Dr. H. V. Danks has resumed his earlier studies on modes of seasonal adaptation, a question of special importance in a northern country such as Canada. He is working at present on a review of insect dormancy.

## General Initiatives

Several other important matters have been discussed in Committee, as follows:

Regional centres for work on the arthropod fauna
Ancillary funding of scientific projects
Data banking of faunal information
A national series of faunal publications
Manpower for systematic entomology

They will be reported on separately as the discussions develop.

## Publications

The following publications originating from the Biological Survey project have appeared during the year:

Symposium: Temporal and Spatial Changes in the Canadian Insect Fauna. Can. Ent. 112:11, Nov. 1980 (150 pp.)

Annual and Quarterly reports: Bull. E.S.C. 12: 89-91; 13: 22; 13: 46-48.

The composition, distribution and ecology of arctic insects, with some speculations on the evolution of arctic communities, by H. V. Danks. Proc. Second Int. Cong. Syst. and Evol. Biol., Vancouver, 1980.

Bibliography of Arctic Arthropods of the Nearctic Region, compiled by H. V. Danks. E.S.C., 1981, 125 pp.

Arctic Arthropods: a review of systematics and ecology with particular reference to the North American fauna, by H. V. Danks. E.S.C., 1981, 608 pp.

The last item, Arctic Arthropods, is the primary product of the second contract between the Society and D.S.S. relating to the Biological Survey Project (1979-1980), and has been published by the Society as an individual hard-cover book. The Committee offer Dr. Danks their warmest congratulations on this important achievement, the only comprehensive book-length work on the insects of the Arctic that has been attempted.

Anthony Downes, Chairman

## SCIENCE POLICY COMMITTEE

At its annual meeting, held at the Agriculture Canada Research Station in Winnipeg, on April 6 and 7, 1981, the Committee responded to actions (or lack thereof) of other organizations affecting entomology broadly, undertook actions to become better informed about entomology in Canada, carried out directives of the Governing Board, and considered development of a science policy for ESC.

The Committee was invited to comment on a report of MOSST's Task Force on Biotechnology. At the Committee's request, President Loschiavo wrote a letter to the Secretary of this Task Force, pointing out that inadequate attention had been paid to human health and safety in regulation of microbial agents for insect control.

The Committee considered and found inadequate support by the federal government for the 5-year plan developed by the Natural Sciences and Engineering Research Council for its programs. President Loschiavo expressed this position in a letter to Hon. John Roberts, Minister of MOSST.

The Committee requested President Loschiavo to write to the President of the Biological Council of Canada (BCC) expressing concern about withdrawal of that organization from SCITEC, soliciting support for ESC's position on preferential hiring of francophones by Agriculture Canada, and inviting BCC to continue to press the federal government for establishment of an Agriculture Research Council.

Stuart Hill agreed to solicit support from SCITEC for items of interest to ESC: preferential hiring of francophones in the federal service; a second manpower study; and the need for continued government support of entomology. Contacts with SCITEC and BCC are in keeping with the ESC's responsibility to maintain close relations and to make use of these policy-oriented organizations.

To develop ESC's information base, the Committee undertook to establish a "Dossier of Important Entomological Subjects in Need of Study in Canada". An article was prepared for the Bulletin to explain the Dossier and to request help of the members in establishing it.

Also in conjunction with ESC's information base, a review of entomology curricula in Canadian Universities is being undertaken. Neil Holliday, Chairman of this sub-committee, reported that a list of offerings and programs is being prepared, which will serve as the basis for assessing if these in total provide the completeness of coverage necessary to meet requirements for continued development of entomology in Canada.

At its meeting in October, 1980, the Governing Board charged the Science Policy Committee with preparing a brief showing the need in federal government for a continuing research component concerned with the role of insects in development of natural and food resources in Canada. To meet this directive, a sub-committee was established, chaired by Jeremy McNeil. He reported that the focus of the brief would be on a general demonstration of the importance of entomological research in Canada, and on data to show that the major support for entomology in this country has been from the federal government, and that no other agency or segment of the general system is likely to undertake such support.

The Science Policy Committee was directed to prepare for President Loschiavo's consideration a letter to be sent to Right Honorable Pierre Elliott Trudeau, expressing concern about hiring of francophones in the federal service generally, and particularly the recent application of this policy to the Biolsystematics Research Institute. This document was prepared.

To enable ESC to act more effectively on its own behalf rather than reacting to circumstances imposed by outside influences, the Committee undertook to prepare a statement of science policy, for presentation to the Governing Board at its meeting in October, 1981.

Finally, the Committee undertook a revision of its Guidelines, to specify more fully membership and chairmanship, and to ensure continuity though sufficient overlap of members' terms.

G. E. Ball, Chairman

## PUBLIC EDUCATION COMMITTEE

This committee became autonomous from the Science Policy/Public Education Committee in the fall of 1980. The committee was composed of the seven Regional Directors along with D. Barr (Toronto), D. F. J. Hilton (Lennoxville), D. J. Larson (Newfoundland) and K. W. Richards (Lethbridge). The main objective of the committee is to stimulate interest in entomology and strive to make the public more aware of the value of entomology and the role of entomologists in society.

The committee collected a series of published semi-popular articles on Canadian insects and is attempting to have them reprinted in booklet form for distribution to schools. Members of the committee prepared other articles on insects for semi-popular magazines and encouraged E.S.C. members to do the same. Several members of the committee appeared on open-line radio programmes to discuss insects in the urban environment, pesticides, forest insects, and agricultural pests. The committee also began preparing material for a series of television tapes on high profile insects.

The committee administered $1,000.00 of E.S.C. funds for use by the Affiliate Societies in student encouragement. Attempts were made to have each Affiliate administer at least $100.00 of these funds. All requests received were funded as follows:

| | |
|---|---|
| E.S.B.C. | No request |
| E.S. Alta. | No request |
| E.S. Sask. | No request |
| E.S. Man. | $100.00 for entomological workshops, a field trip, and a display in a Winnipeg shopping plaza |
| E.S. Ont. | No request |
| S.E. Que. | $300.00 for promotion of insect studies by amateurs |
| Acad. E.S. | No request |

J. D. Shorthouse, Chairman

## MEMBERSHIP COMMITTEE

A program to attract new members into the Society has been drafted and submitted to the appropriate people in the Regional Societies for comments and suggestions. The suggested program consists of documents:

1. A letter to be sent to the Chairman of all of the departments of Entomology, Biology and Zoology at Universities in Canada.

2. A revised membership application form.

3. A cartoon poster suitable for display.

4. A 4-page description of the Entomological Society of Canada outlining the advantages of becoming a member.

5. A letter for publication in the "Bulletin" requesting each member of the Society to attempt to recruit new members.

Dr. J. C. Tourneur has been asked to translate this material into French for prospective francophone members.

Once the details of the membership drive have been approved it is hoped that all members will help to build our Society.

W. G. Friend, Chairman

## FELLOWSHIP SELECTION COMMITTEE

Thirty-three names were considered by the Committee for fellowship in the Society. From these the following were selected and ratified by the Governing Board:

J. H. Borden
D. M. Davies
S. R. Loschiavo
Susan B. McIver
J. N. McNeil
Ray F. Morris
F. A. Urquhart

There are now 72 Fellows in the Society.

Recommendations are being made to the By-laws Committee regarding the procedures to be followed by the Committee in making selections to avoid misunderstanding amongst the members of the Society.

The Committee appreciates the assistance and co-operation it received from the Governing Board and Trustees and the ratification of its selections by the Governing Board.

F. T. Bird
R. A. Brust
G. S. Cooper
H. Madsen
W. G. Wellington
M. E. MacGillivray, Chairman

## ELECTIONS COMMITTEE

The Elections Committee of the Entomological Society of Canada encountered difficulties in 1981 as a result of the postal strike which began approximately two weeks before the July 15, 1981 deadline for receipt of ballots. At the onset of the strike, 281 ballots had been received. After consulting with the President of the Society, the Committee decided to count the ballots as usual on July 16, 1981 in order to determine whether any candidate had a clear enough majority to declare a winner. However this was not possible for any of the offices to be filled and it was therefore decided to leave the polls open until after the resumption of postal services. When these were resumed, the committee again consulted with the President of the Society as well as with the postal authorities. Based on information thus obtained, it was decided to close the

polls at 10:30 a.m. August 31, 1981, by which time, an additional 34 ballots were received. Thus a total of 315 ballots were returned out of the 760 mailed to members by the Treasurer. There were no spoiled ballots. The results were as follows:

| | |
|---|---|
| 2nd Vice President: | Ray F. Morris |
| Fellowship Selection Committee: | A. W. MacPhee<br>B. J. R. Philogène |
| Board of Directors: | G. H. Gerber<br>A. D. Tomlin |

We hereby certify that the Elections Committee accurately counted all ballots received and that the results were as indicated above.

P. A. MacKay, Chairman
P. W. Arnfield
T. D. Galloway

## SCHOLARSHIPS COMMITTEE

Eight students applied for the ESC 1982 Post-Graduate Scholarships; unfortunately, one applicant was disqualified because of a very late submission. The other seven applications were good with little difference between the top four condidates. The Scholarship Committee recommends that two scholarships be awarded. The successful candidates are:

| | |
|---|---|
| Mr. Daniel Timothy Wayne Quiring | - Laval University |
| Mr. Paul Gregory Fields | - Laval University |

During the period 31 August 1980 to 31 August 1981, 43 donors contributed $2,213.75 to the Scholarships Fund. From 1 January 1981 to 31 August 1981, 22 donors contributed $1,513.75. The fund is currently worth $23,687.53 with accrued interest to date for awards amounting to $2,807.00. Contributions received during 1981 included a $10,000 transfer from E.S.C. funds; $650.00 from a Regional Society re surplus funds from the 1980 ESC Annual Meeting; and $150.00 from industry.

The continued support of all members is earnestly solicited. The Scholarships Committee expresses it thanks to all who helped make the past year so successful.

Mr. Ray F. Morris, Chairman

## EMPLOYMENT COMMITTEE

The Employment Committee has compiled and published the third edtion of a booklet containing the resumés of E.S.C. members seeking employment. A total of 46 resumés were returned of the 191 questionaires distributed (24%), including 28 PhD's and 18 MSc's. Two hundred copies of the booklet were published and distributed amongst ca. 180 employers of entomologists in Canada and abroad.

The Employment Committee has also developed and revised a proposal to assess whether predictions made by a 1975 Entomological Manpower survey (E.S.C. Bulletin, vol. 8(3)) were realized and to perform a comparable study of the employment situation in Canada for 1981 through 1986. This revised proposal has been submitted to the Governing Board for approval, prior to submission by the Society to the Department of Supply and Services for funding.

The Employment Committee would like to acknowledge the help provided by many people through 1980-81 and extend our sincere thanks.

D. J. Madder and
Scott MacDonald (Co-Chairmen)

## INSECT COMMON NAMES AND CULTURES COMMITTEE

The English version of the Common Names list is now in its final stages of preparation. All corrections and suggestions have been received from committee members and have been entered into the master list. There now remain a few taxonomic problems which are being looked at by members of the Biosystematic Research Institute. When these problems have been resolved, the necessary corrections will be made in the master computer list. Final print-outs will then be prepared and sent to committee members for approval. Within one month copies will be sent to the board of E.S.C. for action.

Not only have I asked committee members to help with the list, I have asked for their advice about a new set of guidelines for the committee. As a result, a proposed revision of the committee guidelines and rules has been submitted for the board's approval.

Submission forms for name proposals have been sent to the government translations for the addition of an appropriate French text. When this is completed, it will be necessary for a supply of these forms to be printed. Printing cost estimates of approximately $50.00 plus P.S.T. have been received from the Wilfrid Laurier University printing shop.

Although formal acknowledgement of assistance will be given in the preamble to the published list, I wish to call to the board's attention, the fine and willing help given to me by the committee members. Without such help this task would have been most difficult instead of the pleasure it has been.

Wynn Y. Watson, Chairman

## HERITAGE COMMITTEE

Several significant developments have occurred in the past year. First of all, an agreement was signed between the Public Archives of Canada and the Entomological Society of Canada. All materials submitted by the Society will be examined, sorted, identified, described, and held in safekeeping by the P.A.C. for an initial 5-year period. This can be renewed for subsequent 5-year periods.

In addition to materials submitted by previous chairmen of this Committee, the following were sent to the P.A.C. in 1981:

a) Six volumes of Minutes and Accounts of the Botanical, Microscopical, Geological, Ornithological, and Entomological Sections of the Entomological Society of Ontario, (1890-1906), prepared by W. W. Judd in the years 1969-1976.

b) Bibliography of Alberta Entomology (1883-1977), by A. M. Harper, 1979.

c) Bibliography of Papers presented at the Annual Meetings of the Entomological Society of Alberta (1953-1978), by A. M. Harper, 1980.

d) F. H. Wolley-Dod, Alberta's leading pioneer Lepidopterist, by C. D. Bird and A. M. Harper, 1981.

The P.A.C. has isolated, as not being of archival significance, and sent to the Book Exchange in Ottawa, copies of the Bulletin of the E.S.C., No 80-93, 1971-1974; and Can. Ent. volumes September 1971 to February 1974.

All members of the Society are urged to submit to the Committee any and all photos, minutes, reports, biographies, accounts, newspaper scrap books, university calendars, programs, and letters having entomological overtones. If such items are not accepted by the P.A.C. as having archival value, they will be returned to the sender.

Respectfully submitted,

P. W. Riegert, Chairman

## COSTS OF DESTRUCTIVE INSECTS IN CANADA—REPORT

Mr. Marvin Stemeroff (M.Sc. Agricultural Economics) has been appointed researcher on this project and Dr. J. A. George as the entomologist. They have been working since March and have gathered some information but, more importantly, have prepared an outline of the methods to be followed in the study and the nature of the report.

If is planned that the Scientific Committee will meet in October or November and review the draft outline that has been prepared and suggest additions or deletions.

F. L. McEwen

## ANNUAL MEETING—1982—REPORT

The Joint Meeting of the Entomological Society of Canada, Entomological Society of Ontario and Entomological Society of America will be held at the Royal York Hotel in Toronto, November 28 to December 2, 1982.

A number of decisions have been made:

The theme will be Nearctic Entomology - Continental Co-operation.

Registration and financing of the meeting will be handled by the Central Office of the Entomological Society of America.

Business meetings will run concurrently.

The opening session (greetings, announcements, presidential addresses) will be held on Sunday evening.

The President's reception (Entomological Society of America) will be broadened to include officials and program planners from Entomological Society of Ontario and Entomological Society of Canada.

Dr. S. B. McIver is Chairman of Local Arrangements. Some of her committee chairmen have been appointed:

E. F. Johnson - Spouses' program.
J. A. Oakley will serve as liaison between Canada customs and exhibitors.
M. K. Sears - Publicity.

The suggestion has been made to reduce drastically the number of submitted papers.

Three symposia have been suggested;

1. Faunistic studies on North American Insects - suggested by the Scientific Committee of the ESC Biological Survey.

2. Structure and evolution of the Hydradepha (Coleoptera). Suggested by R. E. Roughley and G. W. Wolfe.

3. Pleistocene and Holocene changes in the Canadian and American Insect Faunas. Suggested by A. V. Morgan.

F. L. McEwen

## PERSONALIA

Carl B. Huffaker, President of Entomological Society of America began a phased retirement in the University of California ("three-quarters" retired) but will continue both his teaching and research roles for 4 more years reaching full retirement in 1985. Our good wishes to this ESC member.

# BIOLOGICAL SURVEY OF CANADA (TERRESTRIAL ARTHROPODS)

## Northern Review

The results of the contract "Review and Synthesis of Knowledge on Northern and Arctic Insects", carried out by the Biological Survey during 1978-1980, are now complete, with the publication for sale by the Entomological Society of Canada of a hardcover book on arctic arthropods, and a related bibliography.

Danks, H. V. 1981. Arctic Arthropods. A review of systematics and ecology with particular reference to the North American fauna. Entomological Society of Canada, Ottawa. 608 pp.

Danks, H. V. 1981. Bibliography of the arctic arthropods of the nearctic region. Entomological Society of Canada, Ottawa. 125 pp.

## Meeting of the Scientific Committee

The Scientific Committee for the Biological Survey project met in Ottawa on October 29-30, 1981. (Membership changes that are to take place shortly will be announced in a future Bulletin).

General development of the Biological Survey

Dr. L. Lemieux, Director of the National Museum of Natural Sciences, reported the formation of the Natural History Survey of Canada within the Museum, and brought with him a Statement that the Museum had prepared. The Statement (which will be published in a future issue of the Bulletin) indicates that the Natural History Survey has been established by the Board of Trustees of the National Museums of Canada, to be conducted by the National Museum of Natural Sciences. It mentions the continued involvement of the Entomological Society of Canada in the Survey at the policy level, in accordance with the often repeated view that scientific societies should assume a larger responsibility for the planning and fulfilment of nationally important objectives in their disciplines. The Statement also indicates that the Biological Survey (Terrestrial Arthropods) is to be regarded as a model for other groups of organisms, and Dr. Lemieux added that other societies or groups should be encouraged to think along these lines.

Dr. Lemieux also presented a proposed Memorandum of Agreement on the Biological Survey (Terrestrial Arthropods) between the National Museum of Natural Sciences and the Entomological Society of Canada. The Committee adopted a resolution that the Entomological Society of Canada approve this Memorandum of Agreement.

Dr. Lemieux emphasized that the documents presented reflected the Museum's long term committment to the development of the Survey, and to continued co-operation with the Entomological Society of Canada.

Information from other key organizations

1. Biosystematics Research Institute

Mr. G. A. Mulligan, Director of the Biosystematics Research Institute, welcomed the documents from the N.M.N.S., noting that many of the objectives of the Biological Survey complement the undertakings of the Institute.

He summarized the Institute's objectives in care and maintenance of collections, taxonomic studies, production of floras, handbooks, etc., and the national identification service. Mr. Mulligan outlined some expected future developments, including an additional emphasis on northern areas (including the arctic) that was consistent with recent departmental policy developments. He also discussed with the Committee matters relating to the storage of material, the national identification service, and voucher specimens. Mr. Mulligan concluded by stating that the B.R.I. hoped to share in and encourage systematic work throughout the country, a philosophy in accordance with that of the N.M.N.S. and the Biological Survey.

2. Entomological Society of Canada

Dr. G. B. Wiggins, President of the E.S.C., expressed the delight of the society with the Arctic Arthropods book and bibliography, and congratulated those responsible in the Survey. He welcomed the formal establishment of the Natural History Survey in the Museum, and the encouragement of Societies to play an active role in developing scientific policy. Dr. Wiggins appreciated especially the genuine spirit of partnership that had emerged between the E.S.C. and the N.M.N.S.

Dr. Wiggins outlined some other Society initiatives that would help to confirm the need for faunistic studies. A brief is being developed on the need for long-term federal support for studies of the role of insects in the development and conservation of renewable natural resources. A study of the cost of destructive insects is in progress, and involvement in a review of biological control might be contemplated in due course.

Scientific priorities

Various scientific projects of the survey (listed in Bull. Ent. Soc. Can. 12(4): 90) were discussed; some developments in selected projects are indicated below.

1. Insect fauna of the Yukon

A paper in preparation to provide a preliminary account of the setting and nature of the Yukon fauna is to be expanded. Active field parties supported by an N.S.E.R.C. cooperative grant for work in the Yukon visited the area in 1981 (from Royal Ontario Museum and University of British Columbia). Two entomologists from B.R.I. spent much of the summer there; two others undertook a shorter visit. Three entomologists travelled from the University of Alberta. Several of these people were able to use some facilities made available at the Geological Survey of Canada camp at Old Crow. Substantial collections are being gathered, that will provide a core of material for analysis of the Yukon fauna; a publication on this is envisaged in due course.

2. Arthropod fauna of Canadian grasslands

Considerable interest in this project was shown at a special interest group convened at the 1981 Annual Meeting of the E.S.C. From this and other discussions, useful directions for the project are emerging, and an information newsletter addressed to interested individuals is being assembled.

3. Aquatic insects of freshwater wetlands

A short account of the project has been developed, for publication (see this issue of the Bulletin) and circulation to interested individuals.

4. Aquatic insects of Newfoundland

This project, begun during the Pilot Study for the Biological Survey, has resulted in two scientific papers now in press (on the caddisflies and on the aquatic insects as a whole in Newfoundland), and will be briefly reviewed in the next issue of the Bulletin. The interesting results set forth in these papers suggest several rewarding avenues for work that could be pursued by cooperators outside Newfoundland.

5. Arthropod fauna of the soil

A paper detailing the status and research needs of Canadian soil arthropods was discussed by the Committee. This emphasizes the lack of information, especially on immature stages, and the lack of specialists dealing with the diverse soil fauna, even though this fauna is of particular importance in Canadian latitudes. The paper will be published as a brief during 1982.

General concerns of the Scientific Committee

Several topics of general concern were discussed by the Committee. A few of these have been selected below.

1. Letter to Parks Canada

The Chairman, on behalf of the Committee, has written to Parks Canada to reiterate and develop some of the recommendations of the Pilot Study. The values of benchmark research in National Parks are set out, and related to the network of Parks. This initiative has been commended by the Natural Resources Division of the National Parks Branch.

2. N.S.E.R.C. funding of faunal work

The Committee discussed at length with Mrs. Eileen Johnson, a representative of the Natural Sciences and Engineering Research Council, a commonly-held perception that studies of the fauna were not faring well in N.S.E.R.C. grant selection committees. The Biological Survey wished to point out to N.S.E.R.C. that Canada was notably deficient in the knowledge of its plants and animals, especially terrestrial arthropods, and in the appreciation of their many roles in nature. The Committee noted that explorations of the fauna lead to the understanding that is vitally necessary to a wide range of undertakings. Among other useful exchanges of information, the Committee learned that a subcommittee has been established within N.S.E.R.C. to ensure consistency of treatment of proposals in taxonomy, biogeography and biological surveys. This subcommittee met earlier in the year to arrive at appropriate guidelines for the use of grant selection committees.

3. Regional Centres

A paper entitled "Regional collections and the concept of regional centres" has been submitted for publication in the Proceedings of a Workshop on the Care and Maintenance of Natural History Collections (Ottawa, May 1981). This is scheduled for publication in the Syllogeus series during 1982.

4. Symposium, 1982

A symposium entitled "Origins of the North American insect fauna", organized by J. A. Downes, has been established for the 1982 joint Annual meeting of the E.S.C. and E.S.A. in Toronto. The Biological Survey is also developing a poster display about some of its scientific projects for this meeting.

General activities of the Secretariat

1. Staffing

The Committee agreed that an assistant to the Secretariat is required in view of the overwhelming variety of tasks assigned to the single scientist currently on its staff. Some further discussions about how to secure support for an assistant are planned.

2. Visits to entomological centres

The Director of the Secretariat, Dr. H. V. Danks, has begun a round of visits to entomological centres in Canada to talk informally about the Survey, and learn about current projects and initiatives in systematic and faunistic entomology. Formal seminars on a variety of subjects are also being offered during these travels. During October 1981, visits were made to Guelph, Harrow, Hamilton, and Toronto, Ontario.

## PERSONALIA

C. Ron Harris, Research Station, Agriculture Canada, London, Ontario is a member of the Special Committee for Pesticide Resistance for the Entomological Society of America.

Susan B. McIver, Department of Zoology, University of Toronto is secretary of the Section D: Medical and Veterinary Entomology of the Entomological Society of America.

# BIOLOGICAL SURVEY OF CANADA (TERRESTRIAL ARTHROPODS)

## PROJECT ON AQUATIC INSECTS OF FRESHWATER WETLANDS

The Biological Survey of Canada has been studying the feasibility of doing research on aquatic insects of Canadian wetlands (cf. Bull. Entomol. Soc. Can. 12(4):90 (1980); 13(2):46 (1981)). This note is intended to identify the need for wetlands research to solicit cooperation from persons interested in faunistic studies in Canadian wetlands.

Wetlands are "...lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is convered by shallow water...Wetlands must have one or more of the following attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained, hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year. (Cowardin et al. 1979, p. 3).

Human antipathy towards wetlands has persisted since antiquity (Brande 1980). This antipathy served to discount the value of wetlands and, consequently, encouraged their conversion into land useful for agriculture, industry, housing, transportation and waste disposal (McCormick 1978; Brande 1980). Over the last three decades or so, the usefulness of wetlands has been recognized and efforts have begun to halt their destruction (McCormick 1978; Brande 1980). Nevertheless, wetland habitats still are being destroyed at alarming rates.

Wetlands have many natural functions, as follows:
-store water and recharge under- and above-ground water supplies during low water periods;
-purify water for rivers and lakes;
-act as buffer zones to reduce soil and shoreline erosion;
-provide habitat, nursery grounds, and food sources for a great diversity of biota;
-provide aesthetic and psychological support for human beings; and
provide useful products such as food, fibre and fuel crops (Stearns 1978; Canadian Committee on Ecological (Bio-physical) Land Classification 1980; Canadian Wildlife Service 1980).

There is a paucity of basic faunistic information for aquatic insects in freshwater wetlands (Rosenberg and Wrubleski 1980). A lack of knowledge of the roles of aquatic insects and other invertebrates in wetlands hinders the understanding of wetlands ecology. For example, the functions of invertebrates in nutrient processing and cycling in wetlands are poorly understood and deserve further study (cf. Good et al. 1978).

Five main kinds of wetlands are found in Canada: bogs, fens, marshes, shallow waters (i.e. pothole lakes), and swamps. Bogs and marshes (for definitions of these habitats see Tranocai 1980, p. 12-12) occupy the largest area of wetlands in Canada and, therefore, future studies should be located in these habitats. Especially little is known about the functioning of peatland bogs, the most extensive and widespread type of wetland in Canada.

Initial studies of aquatic insects in Canadian wetlands should include taxonomic and life history work and dynamic aspects of wetlands ecology, such as the functions of insects in litter breakdown and nutrient cycling. Such studies are particularly suitable for graduate theses. Numerous taxonomic groups are present, including, among the most conspicuous, Diptera (especially Chironomidae and Culicidae, but also others), Odonata, Trichoptera and Coleoptera (especially predaceous forms). Rearing of immature aquatic insects and association of life stages for taxonomic purposes is described in Merritt et al. (1978). Guides to sampling freshwater habitats are provided in Merritt et al. (1978) and Rosenberg (1978). Although study objectives will determine the life stage sampled, it is less labour intensive and time-consuming to collect and sort adults than immature stages. Also, species-level identifications usually are possible with adults. LeSage and Harrison (1979) describe an emergence trap suited to wetlands, especially marshes. Methods specific to sampling emergence from peat bogs need development.

Intensive site-specific studies rather than extensive superficial surveys should be undertaken because site-specific work can be more easily related to other activities (e.g. waterfowl management, marsh management, experimental acid rain studies), and, thus, more easily supported. Also, potential cooperators in strategic locations probably will be easier to find and more willing to enter into site-specific studies, which would be expected to lead to a more detailed understanding of wetland ecosystems. The number of specimens generated is also a consideration. Fewer specimens should result from site-specific studies than from widespread surveys and the probability of overloading taxonomic resources is, therefore, reduced.

Comparative studies of three similar central Canadian marsh areas offer potential (Table 1). These marshes are similar botanically, occur at three different latitudes, represent a continuum of vegetation zones, and have existing programs of study or management that would relate to studies of insects. The Delta, Cumberland House, and Peace-Athabasca sites have been identified as top priority migratory bird habitats by the Canadian Wildlife Service (1979). Logistical support should be available at all three sites because of the existing programs there. Moreover, studies of aquatic insects are already in progress at Delta, Manitoba.

Studies of peatland bogs are in progress in at least Ontario (W. Glooschenko, Canada Centre for Inland Waters, Burlington, Ont.; personal communication) and northern Quebec (A. Francoeur, Université du Québec à Chicoutimi, Chicoutimi, Qué.; personal communication), although in some of these studies the emphasis on aquatic insects may be minor. Liaison has been established with Dr. Charles Tranocai (Land Resource Research Institute, Ottawa), Chairman of the National Wetlands Working Group of the Canada Committee on Ecological Land Classification, who has been informed of the Biological Survey's interest in wetlands.

The study of aquatic insects in Canada wetlands has the following immediate needs:

1. A registry of workers on insects in wetlands should be started while the study of Canadian wetlands is at an early stage.

2. A network of potential cooperators for active studies of Canadian wetlands faunistics (cf. the marsh studies above) should be started.

3. Already extant published information on aquatic insects in Canadian wetlands should be compiled.

If you are interested in cooperating to fulfil these needs, the Biological Survey of Canada urges you to contact the undersigned.

David M. Rosenberg
Chairman, Subcommittee on Aquatic
Insects of Freshwater Wetlands
Freshwater Institute
501 University Crescent
Winnipeg, Manitoba
R3T 2N6

Table 1. Potential sites for comparative studies of aquatic insects of marshes.

| Location | Approximate latitude (°N) | Vegetation zone[a] | Existing interest |
|---|---|---|---|
| Delta, Man. | 51 | aspen parkland | Delta Waterfowl Research Station; Ducks Unlimited |
| The Pas, Man./ Cumberland House, Sask. | 55 | boreal forest[b] | Ducks Unlimited |
| Peace-Athabasca Delta, Alta. | 59 | boreal forest | Government of Alberta |

[a] After Canadian Wildlife Service (1979).

[b] Regarded as a transitional zone between aspen parkland and coniferous forest by Kiel et al. (1972).

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## PERSONALIA

Gerry A. Mulligan will be Acting Director General, Institutes in Agriculture Canada from 16 November 1981 to 15 March 1982 while the Director General, Jack W. Morrison is on leave, working at the University of Manitoba. During this period Ian M. Smith will be Acting Director of the Biosystematics Research Institute, Ottawa.

Two new entomologist appointments of Research Scientist were made this year at the Biosystematics Research Institute, Ottawa: Dr. Valerie M. Behan-Pelletier in the Arachnida Unit on 6 July 1981 studying Oribatid Mites and Dr. Yves Bousquet on 26 October 1981 in the Coleoptera Unit studying families associated with stored products.

Also two appointments as Biologist were made: Mr. Mike J. Sharkey on taxonomy of Parasitic Hymenoptera and on educational leave to complete Ph.D. studies at the University of Alberta and Mr. Jean Francois Landry studying the taxonomy of Microlepidoptera and also on educational leave to complete Ph.D. studies at McGill University (with some courses at Cornell University).

Noel D. White has recently accepted a Research Scientist position at the Agriculture Canada Research Station, Winnipeg.

# IN MEMORIAM: E. MELVILLE DUPORTE
## 24 X 1891 — 31 VII 1981

"When the heart is overflowing, speech does not flow readily, but I must try to express, however, inadequately, on behalf of my colleagues and myself, indeed of all of us, our very deep and sincere appreciation of our late friend and companion, Ernest Melville DuPorte." These words are paraphrased from what he himself said on happier occasion in 1957, when he received, on behalf of 137 of his former students, a retirement gift which enabled him and Mrs. DuPorte to travel from coast to coast to visit them and their laboratories, wherever they were in Canada.

This unique tribute was some small measure of the love and affection with which he was regarded by all those who knew him a quarter of a century ago- about a year before I first had the privilege of knowing him personally.

Melville Duporte was, above all, a scholar and a gentlemen, a rare combination in any age. He had high principles and set high standards for himself and others, but he was ever fair in his judgement and kindly in his attitude towards those less gifted than himself.

Melville DuPorte was born on the 24th of October, 1891, on the West Indian island of Nevis. His childhood was a happy one, and at a very early age, he developed a keen interest in natural history. After an outstanding careet at St. Kitts-Nevis Grammar School in Basseterre, St. Kitts, he was, in 1910, awarded a scholarship by the Legislative Council of St. Kitts-Nevis to attend university. He then decided to devote his life to the study of zoology, and, though he had the necessary entrance qualifications for the University of London, he chose, influenced by the favourable comments of one of his teachers, to enrol at Macdonald College of McGill University, which by then had not yet produced its first baccalaureate. Such was his enthusiasm for outdoor activities that one of his reasons for coming to Macdonald was that he hoped there to indulge in one of his favourite sports, horseback-riding. Perhaps his earliest disappointment, after arriving in Canada in the autumn of 1910, was to discover that Quebec was not a region where cowboys roamed the range; and he had to settle later for golf, for which he also developed an avid enthusiasm and won many tropies. His indoor activities included book-binding and the making and operation of hand-puppets, at both of which he was very skilled. His performances were much in demand.

From his earliest days at Macdonald College, he was always popular with students and staff alike. His quiet sense of fun was always with him and endeared him to all from the time of his undergraduate initiation. Then, on being thrown ceremonially, but unceremoniously, into the men's swimming pool, he turned the tables on his tormentors by swimming under water to the other end of the pool and remaining submerged until, thinking him drowned, they leapt in fully clothed to rescue him. A day or two before he died, he related the story of earlier times, when the train would stop anywhere along the line, if hailed. He was out collecting insects near Baie D'Urfée when his hat blew off, and as he caught it deftly in mid-air, a passing train duly stopped to enable him to embark. Melville was too much of a gentlemen to relate the exchange that then ensued between the conductor and himself, but the twinkle in his eye left no doubt that the former had been less than polite. We know that Melville could not possibly have been so, for he was never known to raise his voice in anger or even in vexation.

He had his worries and disappointments during his long life, but was too gentlemanly to give vent to his feelings; and such was the respect, affection and love accorded to him by his friends and colleagues, and above all by his wife, Peggy, whom he married in 1937, that these outweighed all other considerations, and, outwardly, he was the most contented person I ever knew.

Academically, Melville DuPorte was one of the most brilliant students that Macdonald has produced. He completed his 4-year B.S.A. course in 3 years, heading his class, to graduate, in 1913, with an unheard of overall final average of 94 per cent, which included, to him, abysmal performance in Bacteriology, for which he received a mere 75 per cent. Others did not share his view, for, when a junior teaching position was offered to him after graduation, it was in Bacteriology as well as Biology (there was no Entomology Department in those days).

In a report to the Administration of St. Kitts-Nevis, in 1913, Principal F.O. Harrison of Macdonald College wrote: "DuPorte intends staying here for a few months to do some entomological work....." This must be the understatement of the century, for he remained active in research and as a member of the Macdonald College faculty until 1980. He was the first graduate of Macdonald College to obtain his M.Sc. (in 1914), and his Ph.D. (1921), both through the Department of Zoology at McGill.

Thereafter he progressed in due time to Full and Post-Retirement Professor of Entomology, and then to Emeritus Professor of Entomology and Plant Pathology, collecting numerous scientific honours and awards on the way, culminating in an honorary Doctorate of Science from Carleton University in 1963. Other honours, such as the recenlty created Fellowship fo the Entomological Society of Canada (the senior national Canadian scientific society) in 1977, came later.

He was an outstanding research worker in many fields (of which insect morphology was but the most widely known), but his teaching and administrative responsibilities were heavy, and he, in fact, carried the main weight of the Entomology Department for many years before officially becoming its chairman in 1955. Nevertheless his contribution to research was very considerable, though his modesty did not permit his appending his name as co-author to the numerous publications by the graduate students whom he directed.

It is as a brilliant teacher, that he is most widely remembered, for he influenced the lives of generations of Macdonald students who were not entomologically inclined. He conducted many courses other than those in Entomology and the formidable Zoology 220- including Genetics and Parasitology. The latter was especially important to him and to the University as a whole, for it was his initiative and groundwork that led to the establishment of the Institute of Parasitology at Macdonald College in 1932. His high standards were not only infectious but influential, for, in 1932-33, when the University decreed that the new B.Sc. (Agr.), which replaced the former B.S.A. degree, was instituted, only his courses in the Faculty of Agriculture were deemed to meet the required standards; all others had to be upgraded. From that time forward, the reputation of Macdonald College has remained enviably high. Besides being an eminent zoologist and entomologist, he was no mean mathematician and his command of English was exemplary. In the words of the late Porfessor Frank Morrison:

"His English was impeccable,
His knowledge knew no bounds.
As Melville stood and stroked his chin,
All pens made scratching sounds."

I shall conclude with a few further words of Frank Morrison, also written in 1957, of Melville and Peggy DuPorte: "Their home became well known to entomologists who have studied at Macdonald College as a place to relax in a friendly atmosphere and enjoy conversation at its best. Together they have lived a very full life, maintaining wide interests in the arts as well as the sciences.....No man has ever been more devoted to his work or to his students than Melville DuPorte. This is attested by the gratitude shown by his graduates." And to this we add: "and all those who have had the honour and benefit of his friendship."

To Peggy, his widow, I express on behalf of the Entomological Society of Canada, our heartfelt sympathy on her sad bereavement, but I would also ask you, and her, that, while mourning his departure, we also rejoice that we were privileged to know him. His memory will be cherished by us all.

D. Keith McE. Kevan,
Professor of Entomology and
Director, Lyman Entomological
Museum and Research Laboratory,
Macdonald Campus of McGill University

Slightly modified from address delivered in the McGill University Chapel, Montreal, 5. VIII. 1981.

Additional Highlights in Life of Dr. E.M. DuPorte

1980 Attended his 70th consecutive McGill University Convocation (Faculty of Agriculture). Establishment of "Le Prix E. Melville DuPorte" of the Entomological Society of Quebec for a graduate student presentation at their Annual General Meetings.

1981 Plaque in his honour in the Library, and establishment of E. Melville DuPorte Lecture series, Department of Entomology, Macdonald College, commenorating 70 years continuous academic activity at Macdonald College, 1910-1980.

Note: A list of his 25 publications from 1914-1977 is available from Professor D. Keith McE. Kevan or the editor.

## COMMITTEE OF PARLIAMENTARIANS, SCIENTISTS AND ENGINEERS (COPSE)

On 27 May 1981, about 88 persons, including 22 parliamentarians, participated in the first meeting of COPSE. The purpose of this committee was to facilitate the building of a bridge of understanding between parliamentarians and the scientific and engineering communities of Canada based on an appreciation of each others concerns and aspirations.

The meeting began with a presentation on micro-electronics followed by a panel and general discussion. The participants then moved to dinner, with seating planned so that each table had at least one representative of the parliamentary, scientific and engineering areas. Conversation at my table covered the solar energy option; national manufacturing, industrial and science policies; pesticide use and registration, and other items. The meeting ended following an address on international science by Dr. Larkin Kerwin, President of the National Research Council.

Most participants felt that the meeting had gone well. Discussions, both following the presentation on micro-electronics and at the tables, were primarily for information exchange and were generally neither politically partisan nor attempts to lobby the parliamentarians.

The planning for this meeting was done by an interim committee representing the Parliamentary Group and the Scientific and Engineering Group (The Royal Society of Canada; The Association of Scientific, Engineering and Technological Community of Canada (SCITEC); The Canadian Engineering Societies Committee; and The Science Council of Canada).

Representatives of the sponsoring groups had prepared a constitution, which was considered by representatives of the Science and Engineering Group before the meeting of COPSE. Under this constitution, the interim (founding) executive will be replaced by an Executive consisting of elected representatives of both groups plus an ex-officio representative of each of the four sponsoring science and engineering organisms. Future meetings of COPSE will be held in Ottawa when the House of Commons is sitting and will probably have a similar format to the inaugural meeting. The prospects for a useful exchange of viewpoints in future meetings seem good, and the sponsoring organizations are to be congratulated for their efforts.

The ESC is a member of COPSE through SCITEC, and therefore is eligible to nominate a representative to participate in the activities of COPSE. The ESC should support SCITEC in this initiative and ensure that a good representative participates in these discussions.

W.J. Turnock
Winnipeg, Manitoba

## NOTICE! RARE DISEASE

A Canadian physician is enquiring into the incidence of a rare, degenerative brain disease which may occur among Entomologists. The disease is called Jacob-Creutzfeldt and this condition causes a rapidly, fatal, presenile dementia. The human disease is caused by a transmissable, unconventional virus akin to the scrapie agent in sheep. The vector for the disease is unknown. It is believed that at least three Entomologists have died of this rare condition.

If you know of any of your associates who have died from a rapidly progressive, presenile dementia, please contact Dr. D. R. McLachlan, Toronto General Hospital 101 College St., Eaton Wing N.,11-213, Toronto, Ontario, M5G 1L7. Any information as to the death, the names of physicians or members of the family whom Dr. McLachlan could contact would be most appreciated.

# CONFERENCE TRAVEL IN AGRICULTURE CANADA

During the past few years, entomologists employed by the federal government have expressed concerns and annoyance about the way in which conference travel was handled. One aspect of this problem directly affected the Entomological Society of Canada because few federal scientists were able to commit themselves to participate in the programs of annual meetings at the time that the program committees were planning symposia and other aspects of the program.

Enquiries made among entomologists employed by Agriculture Canada showed the following problems existed:

1. few agricultural entomologists were aware of the departmental policy and regulations governing conference travel;
2. implementation of the policy as perceived by these entomologists varied among stations and institutes;
3. the policy was perceived by some to restrict conference travel to one scientist from the Research Branch for each conference;
4. application for authority to attend a conference had to be made in mid-summer for conferences scheduled during the fiscal year beginning the next April but confirmation of this authority often was delayed months beyond the beginning of the fiscal year;
5. there was little flexibility in the system to allow for substitution of people or meetings to fit new information on scientific programs;
6. policy regarding attendance at conferences for which the scientists travel costs were not paid by the department was not understood.

Correspondence with Mr. Gaetan Lussier, Deputy Minister, Agriculture Canada from 11 July 1980 to 14 July 1981, and a letter from Mr. Donald J. Johnston, President of the Treasury Board dated 27 October 1980, have provided some answers. The Executive feels that publication of a summary of the policy and its implementation by Agriculture Canada will assist federal entomologists.

Policy: Participation in scientific conferences by federal scientists comes under the general purview of the "Treasury Board Conference Directive" of 1 January 1978. However, Mr. Johnston (letter of 27 October 1978) stated "that document only outlines a number of criteria to be considered before conference travel is authorized" and that control of participation at conferneces "was subsequently delegated to departments when it was recognized that departmental program-related needs vary greatly."

Policy and procedures regarding conference attendance by Agriculture Canada personnel are described in the Manual of Administrative Policy and Procedures, Chapter 30, Section 3006, issued May 1980. The stated policy is that "Branches and Responsibility Centres shall ensure that conference attendance is kept to the minimum level consistent with departmental needs and reflects any restraint measures that may be in effect".

A list of 10 criteria governing conference attendance is given. These include the normal reasons for attending a scientific meeting, e.g. serving on the executive of the society; program planning; presenting a paper; obtaining information in a program related field; establishing and maintaining contact with professionals and organizations needed for program achievement.

A plan for conference attendance is prepared by each Branch by 31 December of the year preceding the fiscal year of the conference. Branch plans are consolidated for review and approval by the Deputy Minister. Following approval, the Branches are notified and given instructions to implement the plan.

In addition to the information given in the Manual, Mr. Lussier responded on the following specific points:

1. Notification of Approval: Scientists should be notified early in the fiscal year of approval of their conference attendance. Delays in notification that occurred in the past should be alleviated by the electronic mail system now in use by the Research Branch.
2. The Treasury Board Conference Directive states that "attendance at (non-governmental) conferences should continue to be limited to one per department or agency, unless multiple attendance can be justified as contributing to the achievement of program directives." However, that stated policy of Agriculture Canada (given above) emphasizes keeping attendance to the minimum consistent with departmental needs, since the diversity of scientific disciplines and the geographic distribution of stations and institutes makes the single representative concept inapplicable in most cases.
3. Revisions to the Plan for attendance : (a) Canadian Conferences. The Directors General of the Research Branch are now authorized to approve additions or substitutions to all Canadian conferences provided they fall within the approved policy and criteria. This will provide more flexibility at the operational level and permit the rearrangement of priorities locally so that, if attendance is supported, it can be authorized immediately by the Director General.

(b) Conferences outside Canada: Substitution of attendees to a conference on a one-for-one basis may be authorized by a Branch Head or his delegate. Attendance at conferences which were not included in a Branch plan may be authorized by the Branch Head personally, when such attendance is considered to be essential.

4. Non-departmental support for conference attendance: Every effort is made to ensure that as many scientists as possible are accommodated with Treasury Board participation guidelines. Scientists willing to take annual leave to participate in a conference are beyond departmental control. "If they are sufficiently devoted and committed to their chosen field of endeavour to contribute their own time and money to further departmental programs, this is very commendable and the Department would have no objections" (letter of 14 July 1981). Mr. Lussier also notes that "our statistics on authorized and actual attendance at conferences for the past four years clearly indicate that the actual attendance has been considerably less than the approved plan." We suspect that this under utilization can be in part explained by the lack of knowledge among scientists of the opportunities for substitution. In addition, since the costs of conference travel are borne within the general travel budget of individual stations and institutes, local financial problems may have led to moneys budgeted for conference travel being allocated to other work travel.

We hope that this brief summary of conference travel regulations will help our members to plan attendance at Entomological Society of Canada meetings. Mr. Lussier has reviewed this summary of the regulations and excerpts from his letters.

W. J. Turnock
Winnipeg, Manitoba

## COMMENT

The information provided about support for conference travel for scientists in Agriculture Canada and the increased flexibility in the "Plan for attendance at Canadian Conferences" is certainly encouraging, and I hope it will result in increased attendance by federal entomologists at meetings of the Society. Nonetheless, I find discouraging the implication of ".... conference attendance is kept to the minimum level consistent with departmental needs..." This statement seems to suggest an unduly parsimonious approach, especially when taken in the context of "...limited to one per department or agency...".

However, if "departmental needs" include having on staff scientists of high morale who contribute to development of their science by direct exchange of ideas with their colleagues from other institutions, and by participating in governance of the scientific societies whose meetings make such exchanges possible, then the notion of "minimal level" is more readily acceptable. Those who make the rules about attendance by scientists at meetings should keep these items in mind and word their directives accordingly.

One item not covered in the directives is that of scientists who are prepared personally to fund their attendance at scientific meetings, but do not wish to use holiday time for such purpose. While it might be inappropriate to permit the entire staff of a department to attend a given meeting on such a basis, it ought to be possible to allow a certain number of persons that freedom. Making the required decisions about who can and who cannot attend a given meeting without financial support imposes additional burdens upon administrators, but presumably they are hired to make such decisions.

In future, I hope that attitudes of administrators about attendance of federal scientists at scientific meetings change, so that coincidence is perceived between "minimum level" and "maximum number possible", including those for whom funding is not available but who are willing to pay their own way. Results of such a change in attitude will benefit not only the federal entomological laboratories, but also the other Canadian entomologists who look forward to seeing their federal colleagues at scientific meetings.

George E. Ball
First Vice-President

## MEETING ANNOUNCEMENT

A Symposium on Invertebrate Cold Hardiness will be held at the University of Oslo, Norway from 16-20 August 1982. For further information contact Dr. L. Sömme, Zoological Institute, University of Oslo, P.O. Box 1050, Blindern, Oslo 3, Norway.

# BOOK REVIEWS

Riegert, Paul W. 1980. From Arsenic to DDT: A History of Entomology in Western Canada. University of Toronto Press, Toronto, Ontario. XII + 357 pp. Hard Cover. $30.00.

Paul Riegert's "Arsenic to DDT" should be required reading for all of us who dream of a simple world of unconstrained nature. Here, in squalid detail, are described the "joys" of untrammeled nature in the pioneer world of Western Canada: the hords of biting flies that feasted on the flesh and blood of hopeful settlers; the ticks, mites, lice and bugs that infested their dwellings, clothes, beds, and bodies; and the endless swarms of locusts, cutworms, sawflies, armyworms, and a host of other pestiferous insects that year after year wiped out in a day the labour of months.

In British Columbia as early as 1880 an embryonic fruit and vegetable industry was assailed by a host of native insects. The lower Fraser Valley and Southern Vancouver Island, the best and most accessible agricultural lands of B.C., were so infested with mosquitoes that only the most hardy settlers could prevail. Valiant attempts, including some of the earliest quarantine laws failed to exclude a host of foreign pests. The production of food crops, upon which the viability of a struggling colony depended, was seriously jeopardized. At the same time it was feared that endless plagues of insects would forever deny the vast prairie region of the West to permanent settlement. Man, his livestock, and his crops were so plagued by insect swarms that it was feared that the region could never support viable agricultural communities.

This book tells how a handful of untrained and virtually unequipped pioneer entomologists subdued the insect hordes and made agriculture in the West not only possible but prosperous. The heroics of these men made the Canadian nation possible and permitted production of unprecedented quantities of grains to feed the hungry masses of other continents. This was truly an epic accomplishment, and one seldom recorded by historians of the Canadian Federation.

It is not easy to dramatize such mundane chores as collecting and identifying insects, surveying vast areas of dusty prairies for grasshopper eggs, grubbing in the soil for cutworm larvae, or concocting vile mixtures of horse manure, sawdust, and arsenic. But these, and similar prosaic chores were the tasks that won the Canadian West and they constitute a kind of heroics ignored in romantic western novels.

Riegert confines himself to facts documented in official reports, journal articles, newspaper accounts, bits of surviving correspondence, and a few interviews with elderly survivors of the times. He has researched these sources thoroughly and I detect no major errors or omissions. Though these sources are seldom fraught with drama, Riegert gleans from them what human interest he can. But unfortunately he is often forced to resort to rather dull statistics of acres infested and treated (mind boggling), pieces of equipment available (pitifully few), tons of poisons prepared and applied (frightening), and dollars spent and saved. These statistics in themselves lack drama, but an imaginative reader may see beyond them and visualize some of the hardships endured by pioneer entomologists: the months of dreary labour, the miles of primitive, dusty roads traversed, the frustrations of persuading bitter and recalcitrant farmers to persist at strange and seemingly futile tasks, and, not the least, the very real dangers to health, if not life itself, of handling wholesale quantities of deadly arsenical poisons.

Unfortunately the entomologists themselves are not sharply focused. Though Riegert conscientiously provides the names of the principal actors of this drama, and photographs of most of them, we learn little of the men themselves. Perhaps to compensate for the lack of personal detail, Riegert is lavish with commendatory adjectives and his characters emerge as one-dimensional figures of superhuman virtue. This is unfortunate. I knew many of these men in their senior years when their youthful exuberance presumably was somewhat subdued, and they were still a colorful band. Inhumanly virtuous they were not, nor were they always wise or even prudent. Their one effective remedy for all insect problems was arsenic, and they poured an arsenic in cavalier style with scant concern for the safety of men, plants, or animals. But though they should not be praised too lavishly, as perhaps Riegert does, neither should they be judged too harshly. They did their best with what they had, and their best, with all its excesses and flaws, seems to have done the job. Desperate times require desperate remedies. My generation was equally, or perhaps even more cavalier with DDT.

In the long run persistence paid off and the West has been transformed from a pest-ridden hell to a relatively comfortable, safe, and prosperous agricultural community.

The book is well printed and nicely illustrated. The frontpiece is a handsome portrait of Norman Criddle aptly entitled "the Dean of early Western Canadian Entomologists." There are twenty-one photoplates, all in black and white, depicting the principal entomologists of the period and early entomological memorabilia.

The book is referenced in a style few entomologists will appreciate. References are in an appended section called "notes", and are more in the nature of notes then full citations. No doubt a determined student could locate most of the source documents, but I found these "notes" irritatingly cryptic. For instance, what should I make of these:

Coves Manuscript Journals 44.
"Reports for 1907" 49-51
W. Downes Victoria (1923)
Glendenning Agassiz (1936)

These cryptic notes are all the information given, and there are many more like them. They may be meaningful to historians, but are irritating to this entomologist.

I notes a couple of minor errors: (p. 139) The parasitic tachinid fly imported to British Columbia to combat European earwig was Bigonicheta spinnipennis (Meigen), not Digonachaeta (sic) setipennis (Fall), (McLeod 1962); (p. 151). The scale insect infesting ornamental trees in Vancouver was Lecanium tiliae (L.), not L. coryli (L.). The encyrtid wasp, Blastothrix serica imported from England to combat the scale never became established in B.C. The parasite recovered from L. tiliae by Glendenning and later workers mistaken for B. serica was B. longipennis, a species endemic to California (Rubin and Beirne 1975).

Riegert is a competent but not an elegant writer. I always understand what he was saying but I was occasionally jarred by his awkward manner of saying it. Cliches are overworked, we often find that things are "due to the fact that" rather than "because", and we find events chronicled in one section of the book repeated in other sections.

But these are minor flaws. The book remains eminently readable, and contains much relevant and fascinating information.

I recommend the book to all entomologists, but especially to the younger generation who might benefit from an appreciation of the foundations of their chosen science and the men and events upon which they are based. It is fitting that these men be remembered and their works appreciated. To older entomologists this history will recall the halcyon days when the chief equipment of an entomologist were his wit, ingenuity, and ability to improvise.

The price is outrageous.

REFERENCES

1. Rubin A., and B.P. Beirne. 1975. Natural enemies of the European lecanium Lecanium tilliae, (Homoptera: Coccidae), in British Columbia. Can. Ent. 107: 337-342.

2. McLeod, J.H. 1962. A Review of the Biological Control Attempts against Insect and Weeds in Canada. Part I. Tech. Comm. No. 2, Commonwealth Institute of Biological Control, Trinidad. Commonwealth Agric. Bureaux, Farnham Royal, England.

A.L. Turnbull
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Hennig, W. 1981. Insect Phylogeny (translated by A. C. Pont). J. Wiley and Sons, Chichester and New York. xii +514 pp. 156 figs. $78.75 (US)

This is a wonderful time to be interested in the origin and evolutionary relationships of insects and their relatives, because evidence from diverse sources (systematics, biogeography, paleontology, plate tectonics, comparative and functional morphology, comparative and experimental embryology, developmental genetics, DNA nucleotide sequences and enzyme polymorphism) is beginning to make sense when fitted together. That this is so is partly because of two books written by Willi Hennig, late of the State Natural History Museum, Ludwigsburg, West Germany.

His Grundzüge einer Theorie der phylogenetischen Systematik (1950) presented a simple but rigourous method for defining evolutionary relationships among extant taxa by showing that shared occurrence of derived character states (synapomorphies) is good evidence for monophyly. Hennig's method had little impact on non-German-speaking biologists until appearance of his summary in the Annual Review of Entomology (1965) and the English translation of his book (1966). Use of his method (now called "Cladistics") inaugurated a productive new era in phylogenetic analysis and classification. This progress was illustrated by publication of Hennig's own Die Stammesgeschichte der Insekten in 1969 in which he used his method to analyse relationships within the whole of the Hexapoda using knowledge of both living forms and fossils. Although this work was hailed "as one of the most important milestones in the study of insects and their allies" (Kristensen, 1975), it too remained largely unread in the English-speaking world even though it has had considerable impact in Europe. For example, neither Anderson (1973. Embryology and Phylogeny in Annelids and Arthropods) nor Manton (1977. The Arthropods. Habits, Functional Morphology, and Evolution) cited Hennig in their books. The appearance fo this superb translation by Adrian Pont of the British Museum (Nat. Hist.) is thus a happy event for historically-inclined, English-speaking biologists.

The book is a straight-forward and graceful translation of the original with revisions and corrections prepared by a team of ten German-speaking specialists under the direction of Dieter Schlee, a former colleague of Hennig in Ludwigsburg, and a prolific contributor in his own right to the literature of insect phylogeny and paleontology.

The book includes four chapters. The first (48 pp.) contains Hennig's most subtle exposition of his method with particular reference to the problems raised by fossils. His principal conclusion here is that important insights about the course of phylogeny do not depend on the discovery of fossils but rather that fossils can only be interpreted when monophyletic groups of present-day species have been established and their phylogenetic relationships reconstructed. Such analysis provides "Ground Plans" (the collective ancestral (plesiotypic) states of the characters used to define a taxon, i.e. its "constitutive" characters) for such groups and these character states can then be identified in fossils and used to place them in the reconstructed phylogeny of a monophyletic taxon of appropriate rank. The importance of fossils that have been so interpreted is that they provide reliable evidence of when particular taxa arose and the nature of their stem groups.

A major problem is the almost complete absence of fossil insects from before the Upper Carboniferous when many insect groups must have arisen (the oldest positively identified insect fossils are those of Rhyniella praecursor and Rhyniognatha of Lower Devonian age). Another is that most insect fossils from before the Jurassic are compression fossils of wings that lack practically all constitutive characters of a particular group. (These characters are often obvious in Amber fossils - knowledge of which is increasing rapidly for those of Jurassic and Cretaceous age - see Schlee in this volume). A third is that many fossils are of species representing now extinct side branches of the stem groups of modern order-level taxa. These, because they have diverged from the principal evolutionary path of a particular lineage may have character states differing greatly and unexplainably from those predicted by the ground plan of the lineage, making the fossil difficult to place. Finally, the lack of thorough, reconstructed phylogenies at the family level for most extant orders of insects results in a

lack of "ground plans" for the orders and thus in the knowledge required to interpret fossils.

Chapter 2 (36 pp.) is a discussion of major localities for Paleozoic and Mesozoic fossils and Chapter 3 (at 352 pp., the "core" of the book) a phylogenetic analysis of the Hexapoda with consideration of synapomorphies, justification of sister group relationships at the ordinal and subordinal level, and with Paleozoic and Mesozoic fossils fitted into his scheme. In the final chapter (3 pp.) Hennig considers prospects for the future (he's optimistic but there's much to do).

New information in this edition appears as 455 "Revisionary notes" inserted at appropriate places in the text. Some of these are comments added since 1969 by Hennig himself to the page margins of his personal copy of the book while others were contributed by experts on particular groups. Some of the latter are extensive, Schlee on methods, fossil localities and Hemiptera; Kinzelbach on Strepsiptera; Kristensen on Amphiesmenoptera (Trichoptera & Lepidoptera); and Konigsmann on Hymenoptera. In addition, 13 new figures (indicated by Roman numeral), revised subject and author indices and a new bibliography contribute to a book 84 pp. longer than the first edtion. The last includes items published or in press in 1980.

Some additions indicate errors made by Hennig (e.g. #57 by Schlee states that Eopterum, Hennig's Upper Devonian pterygote is part of the tail fan of a crustacean), while others provide additional support for ideas originally put forward by Hennig (e.g. #344 by Mickoleit on the monophyletic origin of Mecoptera). Still others summarize critical information collected since 1969. For example, reconstructed phylogenies of orders at the family level are now available for Psocoptera, Phthiraptera, Thysanoptera, Heteroptera, Heteroptera-Gerromorpha, Strepsiptera, Hymenoptera and Diptera-Cyclorrhapha. In several instances, mention is made of important recent works that are not discussed. These include Manton's (1972, Zool. J. Linn. Soc. 51: 203-400) classic study of structure and function in apterygote hexapods, Gupta's (1979) and Boudreaux's (1979) books on arthropod phylogeny, and Rohdendorf and Rasnitsyn's (1980) recent Russian text on the historical development of the Insecta (see Crowson, 1981, Ent. Gen. 7: 105-108 for an English summary). Adequate consideration of these would have required that additional chapters be added to the book. All these works are complementary to, rather than overlapping, Hennig.

The book should be read in conjunction with Kristensen (1975, Z. Zool. Syst. Evolut-forsch. 13: 1-44; 1981, Annu. Rev. Entomol. 26: 135-157) and Wootton (1981, Annu. Rev. Entomol. 26: 319-344). Kristensen provides much detail on structure not treated in this revision and Wootton maps the Paleozoic insect fossil localities showing positions of the continents (although Hennig mentions continental drift, his maps (figs. 11-17) only indicate extent of land and water). Finally Whalley and Jarzembowski (1981, Nature 291: 317) have recently provided convincing additional evidence (structure of the abdomen and furcula) that Rhyniella praecursor is a collembolan.

The book will surely stimulate additional study of insect fossils and relationships and it is a pity that the publishers charge so much for it ($101 Canadian). They could easily have sold a first printing comparable to that of a typical undergraduate biology text at half the price and still realized a profit. At its listed price it is beyond the grasp of many impecunious biologists.

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## NEW BOOKS

Fjellberg, A. 1980. Identification Keys to Norwegian Collembola. Norw. Ent. Soc. 152 pp. 416 figs. The handbook includes keys and short descriptions with notes on distribution and ecology of all the Norwegian and most of the Fennoscandian species (267 spp), and may be ordered from The Norwegian Entomological Society; P. O. Box 70, N-1432 As-NLH, Norway. Price: N. Kr. 50,- (approx. $10 US).

McCafferty, W.P. 1981. Aquatic Entomology, the Fisherman's and Ecologist's Illustrated Guide to Insects and their Relatives. 496 p. Science Bookds Ad Associates, 51 Sleeper St., Boston, Mass. 02210, U.S.A. US $50.00.

# BOOK REVIEWS

National Research Council of Canada Associate Committee on Scientific Criteria for Environmental Quality, 1981. Pesticide-Pollinator Interactions. Publication NRCC No. 18471 of the Environmental Secretariat. 190 pp. $5.00 Can.

This report presents the collective views of a 13-member associate committee, selected by the National Research Council of Canada, to evaluate the effects of pesticides upon pollinators, and to devise guidelines for maintaining environmental quality.

Four major areas are investigated: bees, important as pollinators; direct effects of pesticides; effects of forest spraying on native bee populations; and the effects of pollinator reduction on plants.

The first section--"Bees important as pollinators in North America"--deals with bees which are known to pollinate agricultural crops. An abbreviated account of the general biology, life history and behavioural criteria is provided for each species. Differences between the bees, such as progressive provisioning of the larvae by social bees and mass provisioning by solitary bees, which might influence pesticide impact, are compared and evaluated.

The next section--"The direct effects of pesticides"--covers a wide diversity of investigations. Some of these are as follows: pathways by which different pesticides enter and kill bees; symptoms exhibited by bees affected by pesticides; effects of pesticide contamination upon the bees' resistance to such pathogens as chalkbrood disease; techniques for evaluating, predicting and demonstrating pesticide poisoning. Tables listing the relative toxicity of varous pesticides are also assembled to facilitate a more calculated selection of chemicals for pest control.

The third section--"Effects of forest spraying on native bee populations"--indicates that chemical control of the spruce budworm imposes a greater mortality upon native bees than was first estimated. Throughout the ten days following the second application of fenitrothion on large blocks of land in New Brunswick, it was found that native pollinators were nearly completely absent, and expectations are that recovery of the bee population might take one to three years. The reductions in native bee populations were linked with diminished fruit and seed set, which caused frugivorous birds to congregate and devour blueberries from fields normally harvested by farmers.

The last section of the report--"The effects of pollinator reduction on plants"--focuses upon pollinator activity and the ensuing quantity and quality of seed set. The subject is analysed through a series of such considerations as: the dynamics of insect pollination; physical and biotic factors affecting pollinator activity; measurement of pollinator density; fertilization and seed set; impact of pesticide stress on the pollination of natural plant communities; and the distant consequences of pollinator reduction. Conclusions drawn from reduced pollinator density encompass an increase in the frequency of self fertilization, which is correlated with a reduction in genetic variability; a decreased resiliency to environmental fluctuations and more limited potentialities for the plant species to inhabit available new territories. Thus, a diminution in genetic variability could lead to a decline in population, a change in plant succession and possibly species extinction.

In conclusion, the report recommends more quantitative descriptions of the effects of pesticides upon natural communities. It also proposes that an economic way to derive such information is to select an adequate sample size, and to engage an experimental design which would evaluate chains of cause and effect.

Perhaps one of the areas which might have been investigated more thoroughly is native bees. Only a handful of managed pollinators are dealt with in "Bees important as pollinators in North America". Little information is available on the over 3,000 species of native bees, even though significant declines in their population may be taking place. Some of these bees pollinate the flowers whose berries provide the nutritional reserves to enable birds to carry out their autumn migration. Absence of berries, and a corresponding decline in the number of birds returning, might result in an increasing dependence upon pesticides to control the forest pests which the birds gather to feed their young.

The systematic analysis and presentation of scientific information on bees, pesticides and pollination of plants, combined with recommendations for further study, commend this report not only to those who manage bees and control pests, but also to students and scientists who wish to investigate and study the vital subject of maintaining environmental quality.

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Chararas, C. 1979. Ecophysiologie des Insectes Parasites des Forêts. Published by the author, 38 bis, avenue René Coty, 75014 Paris. 298 pp., 123 Figures 190 Fr. francs + shipping charges (9 francs surface, 20 francs airmail). Copies available from Madame Rousseau, 75, rue de la Tombe-Issoire, 75014, Paris, France.

Professor Chararas has brought together in this volume investigations on an international scale concerning the ecophysiology of forest insect pests. The work includes discussion of the influence of ecological factors (temperature, humidity, light, etc.) on insects and the adaptions of the latter to climatic conditions. Interaction of insects with host plants and with factors contributing to susceptibility or resistance of forest species to insect attack are considered.

The author outlines the mechanisms by which insects become established in various locations and on various host species. These include consideration of primary and secondary factors. The former consist of plant components both non-volatile and volatile, variations in production of these by the host plant, and the olfactory response of the insects to these factors. The latter consist of such stimuli as pheromones and their influence and interaction of the establishment of wood-feeding insects.

In the final section, Professor Chararas outlines the role of nutrition and of digestive enzymes in the ecophysiology of phytophagous insects. These factors enter into the influence of feeding through dietary requirements of phytophagous insects and the compliment of enzymes required to provide such nutrition. Included in this section is a discussion of the role of micro-organisms in digestion and a statement concerning the coevolution of the host plants and their insect predators.

Professor Chararas has drawn on his own research efforts, which have indeed furnished a wealth of information in the realm of physiology of forest insects. He has, however, also been able to gather and integrate the scientific findings of others in the field, whether they be Canadian, American, Australian, European or Soviet scientists.

The work is comprehensive and provides what appears to be an exhaustive bibliography in this field. In this respect, however, occasionally some references in the text are lacking year of publication and the occasional reference occurs in the text without being listed in the bibliography. The French text is impeccable and reads smoothly and easily, although this is a second language for the author. The organization is logical and the areas discussed are complete, in spite of being very concise.

The book is an important reference for students and research scientists interested in the field of ecophysiology of insect pests of forests.

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## NEW BOOKS

Insect and Acaride Tests (IAT), volume 6 is a reference publication detailing research results, progress on candidate pesticides, new information and improvements in insecticide and acaricide testing methods, and data on minor crop use. ESA members $8.00; non-members $13.25. Previous IAT volumes 1-5 at $9.00 each (ESA members); $15.00 each (non-members). Payment must accompany all orders. Add $2.00 per copy if outside U.S.A. Send cheque or money order payable to ESA to ESA Sales Dept., 4603 Calvert Rd., College Park, MD 20740, U.S.A.

Iablokoff-Khnzorian, S. M. 1981. Coléoptères-Coccinellidae. Tribu Coccinellini des régions Paléarctique et Orientale. 600 pp. 420,000F. Société Nouvelle des Editions. N. Boubée, 11 Place Saint-Michel, 75006 Paris, France.

Nordlund, D. A., Jones, R. L. and Lewis, W. Joe (eds.) 1981.
Semiochemicals: Their role in Pest Control. John Wiley and Sons, New York.
$ 46.00 (US)

The increasing public concern for the adverse side effects of pesticides on public health and environment has called for scientists to devise methods of controlling insect pests which are more economical and less harmful to public health and the environment. Semiochemicals are among the most revolutionary and desirable new solutions to the chemical control of insect pests. These are the naturally produced chemicals that influence the behaviour and/or physiology of insects and can be used in a manner that is both specific and non-polluting. The book is a valuable addition to a very limited number of books that have appeared in recent years on the subject of integrated pest control. The book describes and integrates information on a wide variety of semiochemicals and outlines practical approaches to their use in pest control.

The book edited by three leading workers in the field consists of selected papers presented at two symposia, one "Recent Advances in Biological Control Technology: Interactions of Entomophages and Semiochemicals" held in conjunction with the 1978 National Meeting of the Entomological Society of America and the other "Behavioural Chemicals: Role and Employment in Plant Protection" held in 1979 in conjunction with the Ninth International Congress of Plant Protection.

The papers are arranged into five topic groups: introduction, role and significance of allelochemics, role and significance of pheromones, chemistry and evolution of semiochemicals, and conclusion. Information presented in this book demonstrates the strategic importance and practical value of semiochemicals (a relatively new field of science) which are chemical mediators involved at various points in the complex ecosystem. The book is organized both as a resource and reference work and with its abundance of literature citations will equally serve the student of semiochemicals.

The two chapters in the introduction have a useful overview of the conventional pesticide era, search for alternative methods of pest control, and semiochemical terminology.

The section on role and significance of allelochemics contains six chapters that discuss the involovement of allelochemics in various interspecific interactions that are of importance to pest control and the potential use of these chemicals in pest control strategies. The role of allomones and kairomones as chemical mediators between plants and phytophagous insects and in prey selection by predators have been examined. The study of interaction between entomophagous insects and their hosts includes the chemical and physical stimuli involved in host habitat location, host location, and host acceptance.

The section on the role and significance of pheromones contains three chapters and deals with intraspecific and interspecific interactions. Host descrimination by parasitoids, epideictic pheromones that influence spacing pattern of phytophagous insects, and attractive and aggregation pheromones are discussed. Various potential uses of pheromones are also covered.

The fourth section covers the chemistry and evolutionary history of semiochemicals.

The concluding chapter forms the fifth section and summarizes the significance and employment strategies for semiochemicals.

The chapter on semiochemical terminology could have been enlarged to include some discussions pertaining to various definitions. A welcome addition to the book would have been a chapter on the use of semiochemicals on specific regional cropping systems.

In view of the rapid advances made in semiochemicals, the literature on this subject has increased dramatically over the past few years and has simultaneously grown more specialized so that it has become difficult for researchers to keep abreast of current results. This book is an ideal source of information both to the scientist wishing to enter the field and to students. A major strength of the book is that it synthesizes a tremendous amount of information within a unifying framework.

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## BOOK NOTICES

Wiltshire, E. P. 1979. A revision of the Armadini (Lep., Noctuidae). Entomonograph 2. Scandinavian Science Press Ltd., DK-2930 Klampenborg, Denmark. 78 pp. Hard bound. D.Kr. 120.-

This is a thorough and competent taxonomic revision of the adults of the Old World noctuid Tribe Armadini. The author refers to all available type material and uses many characters, some of which are new, to describe or redescribe the 10 genera and 42 species in the group. Several names are given as new combinations or new status.

Charles D. Dondale
Biosystematics Research Institute

Haugum, J. and A. M. Low. 1978/79. A monograph of the Birdwing Butterflies. The Systematics of Ornithoptera, Troides and Related Genera. Vol. 1. The Genus Ornithoptera. Scandinavian Science Press Ltd., DK-2930 Klampenborg, Denmark. 308 pp. Hard bound. D.Kr. 600.-

Of all the tropical Lepidoptera, the so-called birdwings are probably the largest and showiest. This book, in contrast to popular ones that play up the fluorescent and iridescent colours but have superficial text, presents more subdued photography and loads of taxonomic data including descriptions, synonymies, character illustrations, keys, maps, lists of specimens examined, and literature. There are also introductory sections on flight, biogeography, colour patterns mimicry and variation. A warning is also given about the inflated prices paid for these butterflies by dealers, and about the need for official protection.

Charles D. Dondale
Biosystematics Research Institute

Traub, R. and H. Starcke (Eds.). 1980. Fleas. Proceedings of the International Conference on Fleas, Ashton Wold, Peterborough, U. K., 21-25 June 1977. A.A. Balkema, Rotterdam. 420 pp. Hard bound. Available from Merrimack Book Service, 99 Main St., Salem, N. H. 03079. U.S. $48.00

The first-ever world flea conference, held at the childhood home of Dr. Miriam Rothschild, has resulted in a handsome volume of papers covering taxonomy, evolution, biogeography, medical and veterinary aspects, physiology, morphology, ecology, and faunistics of the Siphonaptera. Structural modifications to allow rapid passage through fur, to help maintain a hold on the host, or to protect delicate joint membranes are covered in depth by R. Traub and A. G. Marshall. A poem that plays on the theme of host specificity comes from G. P. Holland. Plague and other flea-borne diseases are discussed by 17 authors. A biography of the remarkable Nathaniel Charles Rothschild (1877-1923), with a list of his publications on fleas, completes the work. This compendium is a valuable source of information on the group.

Charles D. Dondale
Biosystematics Research Institute

Judd, William W. 1981 "A Biboligraphy of the Natural History of Middlesex County, Ontario to the Year 1980 with a Historical Introduction" 157 pp. Phelps Publishing Co., 87 Bruce St., London, Ontario. $12.00

Many early entomologists worked around the London area of Ontario, and much has been written about the insects of the region in more recent times as well. There are about 2,200 references included.

D. M. Davies
Hamilton, Ontario

## MEMOIRS OF THE ENTOMOLOGICAL SOCIETY OF CANADA

No. 117 "Guide to the Geometridae of Canada (Lepidoptera). II. Subfamily Ennominae.3." W. C. McGuffin. 153 + iii pp. Issued 5 October 1981. $7.30 (including postage and handling).

*Paul G. Fields, Laval University receives one of the two 1982 ESC Graduate Scholarships from President S. R. Loschiavo at Banff, Alberta.*

## NEW PERODICAL PUBLICATIONS OF ENTOMOLOGICAL SOCIETIES IN CANADA

Boreus: Newsletter of the Entomological Society of British Columbia. Editor: Mr. Rob Cannings, Entomology Division, B. C. Provincial Museum, Victoria, B. C. V8V 1X4

Ontario Insect Collectors News (sponsored by the Entomological Society of Ontario with assistance from the Toronto Entomological Association). Editors: Steve Marshall, Department of Environmental Biology, University of Guelph, Guelph, Ontario N1G 2W1 and Alan J. Hanks, 34 Seaton Drive, Aurora, Ontario L4G 2K1

## NEW BRI NEWS BULLETIN

In November 1981 the Biosystematics Research Institute, Agriculture Canada, Ottawa began the bi-monthly publication of "Bulletin BRI" in French and English. The next issue is due 4 January 1982. The Editors are Andre Giroux and Marie Labelle. It is mainly a BRI newletter including personalia, general information (e.g. approved field work and collection travel, collection tips, etc.). For more information write the editors, BRI, Agriculture Canada, K. W. Neatby Bldg., Ottawa, Canada K1A 0C6.

*Daniel T. T. Quiring, Laval Univereity receives one of the two 1982 ESC Graduate Scholarships from President S.R. Loschiavo at Banff, Alberta*

## BOOKS RECEIVED

Wilson, M. R. (compiler) 1981. Directory of Research Workers on Homoptera-Auchenorrhyncha.(leafhoppers and planthoppers). Contains 230 names and addresses. Copies available from Dr. M. R. Wilson, Department of Zoology, University College P. O. Box 78, Cardiff CF1 1XL, South Wales, U. K.

Judd, W. W. 1979. Early Naturalists and Natural History Societies of London, Ontario. Phelps Publ. Co., 87 Bruce St., London, Ontario, illustrated, 216 pp.

## PUBLICATIONS OF THE ENTOMOLOGICAL SOCIETY OF CANADA

Danks, H. V. 1981. "Arctic Arthropods. A review of systematics and ecology with particular reference to the North American fauna". Part I. Features of the North-lands. Part II. Arthropod fauna and its relationships. Part III. Annotated list of reported North American arctic species, and their known distribution. References for Parts II and III (2,015 entries). Appendix I. Alphabetical synopsis of arctic islands. Appendix II. Probable host groups of North American arctic Ichneumonidae. Hardcover (6½" x 10") 608 pp., 114 figs., 109 tables, 2,491 refs. $35.00 Can. (30% discount to ESC members, $24.50) plus $2.00 for postage and handling.

Danks, H. V. (compiler) 1981. "Bibliography of Arctic Arthropods of the Nearctic Region". Includes 1,382 papers published through 1979. Softcover (6½" x 10"). 125 pp. $5.00 (Can) plus $1.00 for postage and handling. (automatically distributed free to subscribers to ESC Memoirs)

## INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

A.N.(S.) 119 5 August, 1981

The Commission hereby gives six months' notice of the possible use of its plenary powers in the following cases, published in Bull. Zool. Nom., Volume 38, part 3, 30 July 1981, and would welcome comments and advice on them from interested zoologists. Correspondence should be addressed to the Secretary, International Commission on Zoological Nomenclature, c/o British Museum (Natural History), Cromwell Road, London, SW7 5BD, United Kingdom, if possible within six months of the date of publication of this notice.

Case No.

2299 Ahautlea de la Llave, 1832 (Insecta, Heteroptera, Corixidae): proposed suppression under the plenary powers.

2334 To grant precedence to the family-group name EPHYDRIDAE over HYDRELLIIDAE (Insecta, Diptera).

2147 Nabis capsiformis Germar, [1838] (Insecta, Heteroptera, Nabidae): proposed conservation.

1799 Semblis marginata Panzer, 1799 (Insecta, Plecoptera): additional steps needed to conserve this name.

2178 Nomioides Schenck, 1866, (Insecta, Hymenoptera, Halictidae): proposed designation of type species.

2187 Corrections to data of three family-group names of butterflies on the official list (Insecta, Lepidoptera).

R.V. Melville,
Secretary

# MEETING ANNOUNCEMENTS

The Canadian Conference for Fisheries Research will hold its 35th meeting on 4-5 January 1982 in the Auditorium, Victoria Memorial Museum, Metcalfe and McLeod Sts., Ottawa. For information contact C. Gruchy, Invertebrate Zoology, National Museum of Natural Sciences, Ottawa, K1A 0M8.

The Canadian Society of Environmental Biologists will meet on 5-6 January 1982 at the Sheraton El Mirador Motor Inn, 480 Metcalfe St., Ottawa. For details contact R. J. Paterson, Fish Habitat Management Branch, Department of Fisheries and Oceans, Ottawa.

The Canadian Society of Limnologists will meet on 6 January 1982 in the Auditorium, Victoria Memorial Museum, Metcalfe and McLeod Sts., Ottawa. For details contact Dr. Dave Schindler, Ministry of State for Science and Technology, 270 Albert St., Ottawa, K1A 1A1.

Southeastern Branch of the Entomological Society of America meets on 26-28 January 1982 at Mobile, Alabama. For details write M. H. Bass, Georgia Plain Expt. Stn., Department Entomol. & Fisheries, University of Georgia, Tifton, GA 31793, U.S.A.

The 30th meeting of the Southwestern Branch of the Entomological Society of America takes place from 8-10 February 1982 at the Holiday Inn Downtown, 113 W. Missouri St., El Paso, Texas. For details write Dr. John C. Owens, Dept. Entomol. & Plant Pathology, New Mexico State University, Box 3BE, Las Cruces, NM 88003, U.S.A.

The 1982 Spencer Memorial Lecture will be held in the Biological Sciences Building at the University of British Columbia, Vancouver on Wednesday 24 March 1982 at 8:00 p.m. The invited speaker will be Dr. Einar Bursell of the Tsetse Research Laboratory, Department of Veterinary Medicine, University of Bristol, Langford, Bristol BS18 7DU, England. His topic will be "The relationship between the tsetse fly and its host".

3rd European Congress of Lepidopterology meets on 13-16 April 1982 at Cambridge, England. For details write J. Heath, Monks Wood Expt. Stn., Abbots Ripton, PE17 2LS, U.K.

4th International Course on Applied Taxonomy of Insects and Mites of Agricultural Importance to be held from 19 April - 6 June 1982 in London, U.K. For details write Director, Commonwealth Institute of Entomology. 56 Queen's Gate, London SW7 5JR, U.K.

The Alberta Society of Professional Biologists is sponsoring a symposium entitled "Environmental Monitoring" to be held on 20-21 April 1982 at the Westin Hotel (formerly Edmonton Plaza), Edmonton, Alberta. The symposium will examine why environmental monitoring is required, the design basis of environmental monitoring, the practical aspects of conducting such monitoring, the results of existing environmental monitoring programs, and the value of biomonitoring progress. Eminent speakers from universities, government and private industry will be featured.

For registration and further information contact Don C. Thompson, Secretary, Alberta Society of Professional Biologists, Box 566, Edmonton, Alberta T5J 2K8 - telephone: (403) 429-9110.

The Canadian Society of Zoologists will meet from 16-20 May 1982 at the university of British Columbia, Vancouver, B.C. Symposia will include "Adaptations of mammals, including man, to adverse environments" and "Fish Biomechanics". For more details contact Dr. G.G.E. Scudder, Department of Zoology, University of British Columbia, Vancouver, B.C. V6T 2A9.

The American Mosquito Control Association will meet jointly with the California Mosquito and Vector Control Association on 18-22 April 1982 at Capital Plaza Holiday Inn, Sacramento, California. For further information contact Dr. Jimmy K. Olson, AMCA Programme Chairman, Department of Entomology, Texas A&M University, College Station, TX 77843, U.S.A. (Tel. 713-845-2516).

North American Benthological Society will hold its 30th Annual Meeting on 18-21 May 1982 at the University of Michigan, Ann Arbor. For details contact Thomas F. Nalepa, NOAA/GLERL, 2300 Washtenaw, Ann Arbor, MI 48103, U.S.A. (phone 313/668-2285). Abstracts for papers and poster sessions to be sent before 15 January 1982 to Dr. Richard W. Merritt, Department of Entomology, Michigan State University, East Lansing. MI 48824, U.S.A.

9th International Symposium on Controlled Release of Bioactive Materials will be held from 25-28 July 1982 at the Bahia Mar Hotel, Ft. Lauderdale, Florida. Invited and contributed papers may include those on pheromones, herbicides, insecticides, fungicides, anti-foulants, nutrients, bioactive polymers, veterinary products, pharmaceuticals, molluscicides, controlled release theory, government registration, microencapsulation, and biodegradable polymers. Deadline for abstracts 1 May 1982. For details contact Dr. A. F. Kydonieus, Hercon Division, Health-Chem Corporation, 1107 Broadway, New York, N.Y. 10010, U.S.A., phone (212) 691-7550.

*The 1981-82 ESC Board from left to right: (front row) E. C. Becker, R. Harmsen, P. W. Riegert, G. E. Ball, G. B. Wiggins (President), B. D. Frazer, S. R. Loschiavo, D. M. Davies, J. A. Shemanchuk; (back row) G. H. Gerber, W. G. Friend, R. H. Storch, A. D. Tomlin, R. F. Morris, P.-P. Benoit, D. C. Eidt, J. E. Laing. Absent: R. D. McMullen, T. D. Galloway, P.-P. Harper, H. G. Wylie, C. A. Miller.*

## MEETING ANNOUNCEMENTS

International Congress for the Study of Social Insects will hold its 9th meeting on 9-13 August 1982 at the University of Colorado. For details contact the Secretary, IUSSI, EPO Biology Campus, Box 334, University of Colorado, Boulder, CO 80309, U.S.A.

At the 5th International Congress of Parasitology, held from 7-14 August 1982 in Toronto, Canada, there will be a workshop on "Recent Advances on Biology and Control of Arthropod Parasites of Animals" comprising the following sessions with invited speakers.

1. Immune Relationships of Arthropods and Hosts. (W.A. Nelson, J.R. Allen, S. K. Wikel).
2. Myiasis of Livestock, (J. Weintraub, W.N. Beesley, C.J. Whitten, Philip Spradbery).
3. Ticks (Victor M. Schroeder Castaneda, M. Matthewson, F. Obenchain).
4. Biting Flies (M.M.H. Wallace, J. A. Shemanchuk, P. Atang, R. O. Drummond).

Each session will be followed by disucssion and possibly submitted papers.

For further Congress information contact Dr. S. S. Desser, Secretary ICOPA-V Ramsay Wright Zoological Laboratories, 25 Harbor Street, University of Toronto, Toronto, M5S 1A1, Canada.

The 15th Pacific Science Congress, sponsored by the Royal Society of New Zealand and Pacific Science Association, will be held at the University of Otago, Dunedin, N.Z. from 1-11 February 1983. The theme will be "Conservation, Development and Utilization of the Resources of the Pacific" under 4 symposia: 1) Energy in Agriculture, 2) High Latitude Resources: Their Assessment and Development, 3) Resources, Science and the Law of the Sea and 4) Pacific Island Potentials. Fourteen additional sessions on various topics will include submitted papers. Section J is on Entomology (pertaining mainly to the Pacific Basin) including these topics: Insect vectors of human and animal diseases; Insect pests of agriculture and forest crops; Miscellaneous insect pests; Evolution and distribution of insects; Problems in pesticide usage in rice insect control; Formulation of pest management systems for insects of economic importance,and Biocontrol of insects of economic importance. Convenor of Entomology Section is Dr. J. S. Pillai, Department of Microbiology, University of Otago. For more Congress information contact Dr. C.F.W. Higham, Secretary-General, 15th Pacific Science Congress, P.O. Box 6063, Dunedin North, New Zealand.

# POSITIONS AVAILABLE / DISPONIBLES

## ASSISTANT PROFESSOR IN POPULATION BIOLOGY

Applications are invited for a tenure-track position as Assistant Professor in Population Biology at Simon Fraser University, with research interests in the dynamics of interspecific interactions (e.g., predator-prey, parasite-host, pathogen-host). The successful applicant will be expected to develop a strong research programme and to teach at both the undergraduate and graduate level, including courses in the Department's Master of Pest Management Programme. Candidates must have a Ph.D. degree, with experience in entomology and/or pest management. Preference will be given to candidates eligible for employment in Canada at the time of application. The position is available from 1 September 1982. The current salary base for the Assistant Professor rank is $25,000/year subject to ratification. Applications should include curriculum vitae, a brief statement of research interests and objectives, and reprints of published research. Applicants should request a confidential assessment of their research and teaching ability from three referees, to be forwarded directly to: Dr. K. K. Nair, Chairman, Department of Biological Sciences, Simon Fraser University, Burnaby, B. C., V5A 1S6. Deadline for receipt of applications is 31 December 1981, or until the position is filled.

## CHAIRMAN OF DEPARTMENT OF ENVIRONMENTAL BIOLOGY

Applications are invited for the position of Chairman of the Department of Environmental Biology at the University of Guelph, effective 1 July 1982. This Department is one of nine administrative units in the Ontario Agricultural College. It has close working relationships with the other units in the College, as well as with various departments in the College of Biological Sciences, and with the Ontario Ministry of Agriculture and Food. The department currently comprises of 30 faculty members and 37 other staff. It is responsible for undergraduate majors in Entomology/Apiculture, Plant Protection, Environmental Biology, and Applied Microbiology. The department has a strong committment to research and graduate studies at the M.Sc. and Ph.D. level. Applicants must have a Ph.D. in some field of biological science and an established record of scholarly achievement. The closing date for applications is 30 January 1982. Applications should include a curriculum vitae and the names and addresses of three persons who may be contacted for reference purposes. Enquiries and applications, which will be treated in confidence, should be addressed to: The Dean, Ontario Agricultural College, University of Guelph, Guelph, Ontario N1G 2W1. Only persons legally eligible to work in Canada need apply. Appointment is subject to final budgetary approval.

## ASSISTANT PROFESSOR IN INVERTEBRATE PHYSIOLOGY

Applications are invited for a tenure-track position of Assistant Professor at the University of Toronto. Field of interest invertebrate physiology with 1-2 year postdoctoral experience. To teach both undergraduate and graduate courses and to maintain an active research programme involving graduate students. Open only to Canadian citizens, permanent residents and others eligible for employment in Canada at the time of application. Send applications to Professor D. F. Mettrick, Chairman, Department of Zoology, University of Toronto, Toronto, Canada M5S 1A1.

## ASSISTANT PROFESSOR IN INVERTEBRATE PHYSIOLOGY:

Applications are invited for an invertebrate neurophysiologist with expertise in tissue culture. Applicants should have at least three years of postdoctoral experience in invertebrate neurophysiology and would be expected to set up their own independent research programme under competitive funding through the Alberta Heritage Foundation for medical research. The position would be subject to competitive scholarship funding. Send your curriculum vitae and the names of three referees to: Dr. W.L. Veale, Professor and Head, Department of Medical Physiology, Faculty of Medicine, University of Calgary, Calgary, Alta., Canada T2N 1N4.

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1981-82

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## RECENT DEATHS

Crawford, Edith (Mrs. H. G.), Victoria, British Columbia. On 18 August 1981, age 88. Widow of the Dominion Entomologist from 1943-1950.

Doerksen, George, Pitt Meadows, British Columbia. About 30 July 1981, age about 30. Killed by grizzly bear at Laird Hot Springs, British Columbia, where he was photographing odonates. During the past several years, he had superbly photographed, in situ, about 60 of the 80 species occurring in B.C. Member ESBC.

McLaine, Kathleen Meredith (Mrs. Leonard S.), Ottawa, Ontario. On 20 August 1981. Widow of the Dominion Entomologist from 1942-1943.

Schuh, Joe, Klamath Falls, Oregon. On 29 July 1981, age 72. An avid amateur collector with a good collection of Coleoptera and Hemiptera from the northwest United States. Member ESC, ESBC.